

Approved

Arthur Douville 11-7-87
Date

MINUTES OF THE House COMMITTEE ON Labor & Industry

The meeting was called to order by Representative Arthur Douville at
Chairperson

9:00 a.m./### on February 17, 1987 in room 526-S of the Capitol.

All members were present except:

Committee staff present:

Jim Wilson, Revisor of Statutes' Office
Juel Bennewitz, Secretary to the Committee

Conferees appearing before the committee:

Debbie Berkowitz, Director of Safety and Health for the Food and Allied Service Trades
Department, AFL-CIO

Chairman Douville called the meeting to order. He recognized Wayne Maichel, Executive Vice-President, Kansas AFL-CIO, and asked him to come forward and introduce his guest.

Mr. Maichel thanked the chairman for the opportunity to be heard before the committee on one aspect of HB 2186, the section regarding repetitive use syndrome (carpal tunnel syndrome). He noted the committee's involvement on this syndrome over the past several sessions and emphasized that the presentation for the morning was to show the effect of workers' relations to prevent that disease in the workplace. Mr. Maichel then introduced Debbie Berkowitz, saying that in her position she represented about 3.5 million workers, saying that she spent hours of time working with issues related to carpal tunnel syndrome and has worked with both labor and management to help develop a strategy to eliminate carpal tunnel syndrome.

Ms. Berkowitz stepped forward and thanked the committee for the opportunity to appear and be heard on the subject of carpal tunnel syndrome. She then proceeded with her testimony, see attachment #1. Ms. Berkowitz also distributed to members of the committee a Health and Safety Fact Sheet on carpal tunnel syndrome, see attachment #2. She also played a video called "Getting a Grip" which had some interviews with victims of carpal tunnel syndrome, as well as, some professionals who work with this syndrome.

There was not sufficient time for questions. Chairman Douville asked Ms. Berkowitz if she could appear before the committee again the next day and answer questions that any of the members might have. The answer was affirmative.

The chairman adjourned the meeting at 9:57 a.m.

Next meeting will be February 18, 1987, at 9:00 a.m.

HOUSE COMMITTEE
ON
LABOR AND INDUSTRY

Name	GUEST LIST City	DATE February 17, 1987 Representing
HARRY J. FELSER	Wichita, Kan.	Km AFL-CIO
GEORGE McCulloch	Topeka	
WAYNE MAICKEL	Topeka	
Debbie Berkowitz	WASHINGTON D.C.	AFL-CIO
RON GACHES	WICHITA	BMAC
Bill Morrissey	Topeka	DHR/Workman
Rob Hodges	Topeka	KS Dept
P.E. Arbutnot	Topeka	KTLA
Jim DeLoach	Lawrence	KS AFL-CIO
Chris Cowger	Topeka	KS Ins. Dept
Jim Villanueva	Topeka	KS Ins. Dept
Dew Willoughby	Omaha	IBP

Mr. Chairman and distinguished members of the committee, thank you for the opportunity to appear here today to discuss our concerns over the proposed changes to the Kansas Workers Compensation Statute. I am the Director of Safety and Health for the Food and Allied Service Trades Department, AFL-CIO, an organization comprised of 16 unions representing over 3.5 million workers.

I will limit my testimony to a discussion of the proposed changes regarding compensation for repetitive use conditions occurring in opposite extremities. This provision deals with a set of occupational disorders that is epidemic among the workers we represent. In the past six years, our safety program has seen a dramatic rise in the incidence of these crippling disorders among our members, and we have spent thousands of hours working with local unions and management to develop strategies that will prevent these conditions.

I appreciate the opportunity to share the information we have learned about these disorders with this committee. I hope it will help this committee in understanding the damage that this disorder inflicts on a worker, his or her family and society.

Carpal tunnel syndrome is a repetitive use disorder of the upper extremities. Though the name may sound unfamiliar, the disease is all too familiar to workers nationwide. Studies have shown that this disorder can be caused, precipitated or aggravated by repeated bending or twisting movements of the hand. Hand motions that place a great deal of pressure on the wrist or require the use of great force--such as boning a piece of meat--are especially likely to cause this disorder. (See attachment A for a list of occupational factors associated with carpal tunnel syndrome.)

As with other occupational-related diseases such as asbestosis and brown lung disease, carpal tunnel syndrome is also caused by "unsafe conditions" at work. But these job conditions are not "unsafe" in the traditional sense of unguarded machinery or slippery floors. Carpal tunnel syndrome is caused by unsafe conditions that arise from poor job design. Most machines and tools have been designed with the primary objective of producing goods in the most economical and efficient manner possible, not with the capabilities of the human body and the health of workers in mind.

The anatomy of the human body dictates that certain positions are more comfortable and more efficient than others. One of the weakest parts of the body, and the most vulnerable to injury, is the wrist. This is ironic, for it is also one of the most important parts of the body. There are certain positions, however, in which the wrist and hand are stronger and more

comfortable. A simple exercise demonstrates this. Compare the strength of your grasp when the wrist is straight, with its strength when your wrist is flexed down or extended upwards. Grasp strength is considerably reduced when the wrist is bent, because the tendons that lead to the fingers are immobilized. Work which requires a strong grasp, such as holding a knife or filling boxes of beef, is best done with a straight wrist. When this type of work is done with a bent wrist, unnecessary stress is placed on the hand and wrist. This may inflame and irritate the tendons and nerves, resulting not only in immediate pain and discomfort, but in permanent damage to the body!

Yet, very few jobs in the food industry, for example, are designed to keep the wrist straight. The result, for many workers, is carpal tunnel syndrome.

Carpal tunnel syndrome is a disease which is occurring with increasing frequency. In meat and poultry plants, in sewing operations, in auto factories, among cashiers and meatworkers in supermarkets - in almost any job which requires hundreds, sometimes thousands of repetitive hand motions a day - carpal tunnel syndrome is present. According to published medical literature, carpal tunnel syndrome is between two and ten times more common in women than men.

Carpal tunnel syndrome occurs when a nerve that runs through an area of the wrist called the carpal tunnel becomes squeezed and compressed through overuse. At first, this compression of the median nerve results in acute pain in the hand often felt at night. The most common symptoms include numbness, tingling and burning in the hand. Many workers wake up at night with pains shooting through their hands and arms. In the morning, they have to peel back each finger on their affected hand in order to open it and get it moving. As the disorder progresses, and the nerve continues to be compressed, the muscles in the base of the thumb deteriorate and the worker eventually loses his or her grip. It becomes difficult, if not impossible to hold anything--even a pencil.

In many cases, this disorder can be prevented if it is caught at its earliest stages and the progression is halted. Relatively simple measures such as use of wrist splints at night, and avoidance of prolonged bending of the wrist for a period of time--which may involve a temporary job change for workers--can cure the symptoms in some workers. But there are few workplaces that have designed medical programs to catch the early signs of these disorders among workers. Instead the bulk of workers who report the early signs of these disorders are sent back to the same job with a pain killer, which may relieve the pain, but does little to cure the disease.

Most advanced cases of carpal tunnel syndrome require surgery; the carpal tunnel is actually split and the nerve is set

free from compression. However, surgery is not the answer for work related carpal tunnel syndrome--for in many cases the condition recurs if the worker returns to the same job. If significant nerve damage has already occurred, permanent disability can result even with surgery! Because of the potential complications, all our literature strongly recommends against surgery. Surgery is not a panacea for CTS!(see attachment B).

To illustrate the Hobbesian choice workers with these disorders often face, I want to read a letter from an orthopaedic surgeon to one of our members in a meatpacking plant in Iowa:

Dear Ms. Conard:

Your options at the present time are:

1. Continue working at (this packinghouse) and put up with the pain.
2. Quit (this packinghouse) and go to something easier to do, somewhere else.
3. Have surgical decompression of your carpal tunnels. However, with work at (this packinghouse) there is about a 30% chance of a return of the carpal tunnel syndrome.

This letter actually paints a rosier picture than reality presents; the second option, finding alternative work, is not as simple as it sounds. Almost all companies with assembly or disassembly work (such as food processing) screen new employees for cumulative trauma disorders before they are hired. These companies will not hire anyone with any of the symptoms of these disorders. Among our own membership, we have thousands of former packinghouse and poultry workers, who have worked in the industry for one or two years and have left the industry because of the excruciating pain in their hands. Many are 18-20 years old and cannot find new work because they are left with hands and wrists that are inflamed and irritated due to the work they did in the meat industry. If they do find a job, it is usually a minimum wage job that doesn't involve much hand use. In many cases, these workers are forced to eke out a living through a combination of these low paying jobs and public assistance. Their disability renders them unable to earn a decent wage.

Once a worker is afflicted with this job-related disorder, his or her choices are limited. Carpal tunnel syndrome is rarely a "temporary impairment" as others have tried to paint it. Most often it is a disorder which has a profound impact on a worker's life--especially if the disorder affects both hands.

I want to read the statement of a recent victim of bilateral cumulative trauma disorder, which demonstrates the tragic proportions of this disorder.

"I worked as a tender trimmer in a packinghouse in Kansas. I had worked there 10 years ago for two years, and then left. Two years ago I returned to the plant, at my old job, because I needed the money. My hands started to hurt, but I thought it was because I just needed to get used to the work again. By December 12th, I was having serious trouble with both hands. Bumps had developed on both of my wrists.

I'm most sure why I started having trouble with my wrists when I went back into the plant. I think it is because I was not used to the speed - production was much faster than when I had worked there before.

I went to the company nurse, who told me the bumps were my muscles knotting. The nurse gave me some cream, which I used, and then sent me back to work. The cream did not help the pain at all, so I went to the doctor the next day. The doctor put splints on my arms to keep my wrists immobile. This made it impossible to work, so the company referred me to another physician, who gave me cortizone injections in the wrists and elbows. The pain in my wrists and arms continued, and even my shoulder began to hurt. My hands ached, and started trembling. I could no longer work.

I am now preparing to move in with my husband's family-- because my family does not have any income to cover my bills.

I am not able to lift or do anything with my hands now for more than 15 minutes. Things like cooking. The kids suffer, because I cannot cook everything at the same time--it takes me a long time to cook anything, because I have to stop and rest. So they aren't eating regular hours.

My hands shake and tremble whenever I try to do much with them. Or even if I am just sitting. Like when we are social-- I'll have friends over, and all of a sudden, my fingers will start to dance around. Besides being painful, it is really embarrassing.

The only thing that really bothers me a lot is that the things I like to do, and wanted to do, I'll never be able to do.

Like with the kids--they bring the babies over, and I want to hold them and play with them. I can't even pick them up.

And I wanted to do things with my kids, like play basketball and go skating. I went skating once. I couldn't hold myself up-- I fell down, and couldn't catch myself, and so I lost my two front teeth.

I wanted to go to beauty school, and get my license, and open my own little place. Now I can't even do that. I can't hold anything.

My husband invested in this featherweight phone, which is the only reason I can talk for this long.

It's awful...I am in a state of depression. I've been seeing a counselor. I have to keep myself together for my kids. They know when I am feeling down, and they know why.

We'll be finished packing in a couple of days. My kids have to do a lot of it, so it takes longer. We'll be ready to move soon."

This occupationally related disorder, like others, can be prevented. Many industries, including many auto, electronics, and sewing assembly line plants have hired ergonomists-- specialists trained in designing machinery and tools to fit the physical needs of employees--to look at their production lines and suggest ways to reduce the stress placed on the upper extremities. The solutions to the problem have ranged from putting a bent handle on a tool, eliminating the need to bend the wrist, providing workers on the production line with adjustable stools, to better training for new workers. Many companies have implemented active medical programs that constantly monitor workers with the early symptoms of cumulative trauma disorders and provide early medical intervention to halt the disorder's progress.

The video I am about to show you, on cumulative trauma disorders, was made with funds from the Occupational Safety and Health Administration, and is used to educate workers and management about these disorders:

The most important point this video makes is that these industrial based disorders are preventable. The high incidence rates that have plagued so many of our Midwestern industries in the past few years can be controlled. I am dismayed when I read quotes in the newspapers from industry spokesmen who complain about the high compensation costs for carpal tunnel syndrome, because implicit in their statements is the attitude that these disorders cannot be prevented. They are suggesting that the only way to deal with these work injuries is to fight compensation costs, and that it is the State's role to minimize the costs to the industry. We urge this legislative body to rise above these self-serving arguments, and instead make the prevention of work related injuries and illnesses the goal of the State and its related statutes.

In conducting our research for this presentation, I was not surprised to find that the industries lobbying the hardest for the change in the workers compensation statute as it regards cumulative trauma disorders, are also those that have done the

least in trying to prevent these disorders. The meatpacking industry is a prime example.

This industry has the highest incidence rates of cumulative trauma disorders in the nation. The dramatic rise in the speed of production lines over the last decade, exacerbated by a concomitant reduction in manpower, has produced jobs that involve thousands of forceful, repetitive motions a day, placing enormous strains on the body's upper extremities. Recently, the National Institute for Occupational Safety and Health studied workers compensation records in 26 states (they did not study Kansas), and found that in the meat packing industry, the incidence of cumulative trauma disorder claims of the wrist was 21 times greater than it was for all other manufacturing industries (See attachment C). The study concluded that meatpacking plants experience the highest and most dramatic incidence of cumulative trauma disorders, twice as much as any other single industry.

Yet, this industry has lagged far behind other industries, such as the auto industry, in implementing preventive measures. In fact, it was not until 1985, and only as a result of an OSHA citation, that one company in the industry embarked on the first ergonomic study of the production line in a pork plant.

The result of this lack of attention to prevention is that the meatpacking industry spends an enormous amount of money on injured workers. To give you some estimate of what this means in dollars and cents, I will use the example of a meatpacking plant in Illinois which was the recent subject of an OSHA citation on carpal tunnel syndrome. This plant employed approximately 800 workers. In 1983, they spent \$600,000 in workers compensation payments on cumulative trauma disorders!!

This same plant resisted OSHA's findings that cumulative trauma disorders were a problem in the plant, and they fought OSHA's findings that the company should prevent these injuries through workplace changes. They insisted, and I believe I hear their arguments being echoed in Kansas, that the lenient workers compensation law in Illinois was the cause of the high rates of cumulative trauma disorders--and not unsafe conditions.

Upon inspection, the bulk of their workers compensation costs were for carpal tunnel syndrome in one hand--netting an average of \$8,000 per worker. I have yet to meet one worker who is so enticed by this \$8,000 that they long for the pain and anguish of carpal tunnel syndrome.

In this State, Iowa Beef Processors is one of the largest packinghouse employers. IBP is a strong proponent of changing the workers compensation system regarding compensation for cumulative trauma disorders. As with other meatpacking plants, IBP has a very high incidence of cumulative trauma disorders. Data given to the local union at their Dakota City Operation, shows that 88%

of their total illnesses reported to OSHA in 1985 were cumulative trauma disorders. In addition, the IBP plant in Storm Lake Iowa was cited by OSHA for exposing workers to the hazards of cumulative trauma disorders. Due to a technicality involving the way OSHA obtained the warrant for the inspection, IBP was able to have the citation dropped.

Let's take a closer look at their arguments and look at some facts regarding the costs of the current law to this industry. One argument the industry is making about changing the current statute, is that the rate of compensation for bilateral cumulative trauma disorders is much lower in other states. What they fail to tell you is that the compensation rate of cumulative trauma disorders in one hand --a much more common disorder--is much higher in other states! Bilateral cumulative trauma disorder is not a very common occurrence. For example, according to figures given to the Kansas Division of Workers Compensation by IBP*, this company only had 22 claims over the last 9 years of such bilateral disorders. They had only one claim in between January 1985 and August of 1986. The total IBP spend on these claims over the 9 years was a little over 1 million dollars, That averages out to a total of \$111,000. spent by IBP each of the 9 years--which is less than six percent (6%) of their compensation costs per year!!! (See attachment D)

Clearly, bilateral carpal tunnel syndrome is not the big expenditure the industry is making it out to be. Even more, expenditures in Kansas do not seem to be any higher than in other states. In fact, if anything they are lower. IBP for example, spent the same amount per worker in Nebraska for workers compensation (app. \$441.00) as they did in Kansas, and more in Iowa per worker (\$450.00).

It almost seems as if the industry is focusing attention on the costs of compensation to divert attention away from the real task at hand--the prevention of crippling disorders that are maiming the States most precious resource--its workers.

I read a recent report in the Emporia newspaper with much dismay. The paper described an exchange between local officials of the Chamber of Commerce and representatives of a Wisconsin based company considering moving to the Emporia area. "Their first question", according to the Chamber Official, "was, 'What law do you have regarding carpal tunnel syndrome?'" According to the Chamber official, when "the representatives heard that carpal-tunnel syndrome in both arms is treated as a whole-body injury, they said 'Well, we're just not interested'".

In the State of Wisconsin, the compensation rate for cumulative trauma injuries for one hand is twice that of what it is in Kansas. Thus, I would think Kansas would look attractive to a company looking to injure workers in the cheapest way. My question is, why would Kansas want to attract such an industry? Clearly, Kansas doesn't want to become the haven for every danger-

*This information is contained in publicly available documents.

ous industry in the country--a sort of toll free zone for industries that have decided not to prevent injuries. In the short run, this may bring more jobs. But in the long run, it will mean a dramatic rise in worker disability and even death. These costs will drain the state's economy not bolster it.

I hope my testimony here today has provided new information and insight into the question before you. I will be happy to answer any questions.

ATTACHMENT A

OCCUPATIONAL FACTORS ASSOCIATED WITH HAND AND WRIST CTDS

DISORDER	OCCUPATIONAL FACTORS	REFERENCES	
Carpal Tunnel Syndrome	-hands held in fixed position over prolonged period	Melville (1972)	
	-repeated wrist and finger flexion	Tanzer (1959), Mather (1981) Phillips (1967), Miller (1980) Kaplan (1983), Inglis (1972) Birbeck & Beer (1975)	
	-light highly repetitive wrist and finger movement	Armstrong & Chaffin (1979)	
	-repeated flexion or hyper-extension of the wrist	Armstrong (1981), Wherle (1976) Rothfleisch & Sherman (1978) Bora, Osterman (1982), Sandzen (1981) Cannon et al (1981), Brain et al (1947)	
	-repeated low grade trauma	Swajian (1981)	
	-pressure at the base of the palm or wrist	Feldman et al (1983) Armstrong (1983, 1984) Tichauer, Gage (1977), Kendall (1960)	
	-prolonged strenuous use of the hands	Marin et al (1963) Kraft, Halvorson (1983)	
	-vibration	Phalen (1972), Falck, Aarnio (1983) Cannon et al (1981), Wener (1984) Rothfleisch, Sherman (1978)	
	-pinching or grasping	Feldman et al (1983), Smith et al (1977)	
	-wrist ulnar deviation and flexion in repetitive tasks	Tichauer (1966)	
	-wrist extension with forceful pinch	Rabourn (1977) Perrott (1961)	
	Ulnar Nerve Entrapment (Guyon tunnel)	-use of hypothenar eminence as a hammer	Swanson et al (1983) Feldman et al (1983)
		-grasp with thumb, fingers with palmer pressure	Hunt (1911)
-prolonged flexion or hyper-extension, heavy manual work		Harris (1929), Lister (1984) Eckman et al (1975)	
-heavy lifting with palm		Dupont et al (1965)	
-repetitive trauma to palm		Shea, McClain (1969) Urbaniak, Roth (1982), Overton (1967)	
Perineural Fibrosis of Digital Nerves	-repeated minor trauma	Howell, Leach (1970)	
	-grasping sharp objects in the hand	Dobyns (1972), Cyriax (1978) Moidel (1981), Lister (1984) Urbaniak, Roth (1982)	
Ulnar arterial thrombosis (Hypothenar hammer syndrome)	-recurrent blunt trauma	Foster, Cameron (1981) Little, Ferguson (1972)	
	-vibrating tools, push, twist, pound with hands	Conn et al (1972)	
	-repeated impact of catching	McCarrol (1984) Lowry et al (1976)	

SOURCE: University of Michigan

ATTACHMENT B

COMPLICATIONS OF CUMULATIVE TRAUMA DISORDERS

SIDNEY J. BLAIR, M.D.
CHIEF--SECTION OF HAND SURGERY
LOYOLA UNIVERSITY MEDICAL CENTER

COMPLICATIONS OF CUMULATIVE TRAUMA DISORDERS

The purpose of this lecture is to discuss the complications of cumulative trauma or over-use syndrome. According to the dictionary, complications are a second disease or abnormal condition occurring during the course of a primary disease.

These complications account for the long term disabilities seen in some of these disorders. I plan to describe their occurrence, treatment and prevention.

The disorders that I will cover in this lecture will include complications of:

1. Compression Neuropathies - mainly those of the median, ulnar and radial origin.
2. Complications of Tendons and Muscle Disorders

Many of these complications occur because of the unique anatomy and function of the hand and its central connections. Regarding this unique function, as you know, our hands are vital to our existence. As one hand surgeon stated "We live by pinch". We divide our hand function into two categories:

1. Nonprehensile - typing, lifting and pushing
2. Prehensile - seizing and grasping

The prehensile activities are divided into power and prehension grip. In order to carry out the multitude of tasks we have to be able to move the fingers and thumb with precision into various positions. This requires gliding tendons, stable painless joints and strong muscles, plus an exquisite sensibility to feel the multitude of objects and textures. In order to achieve this in, there is a tremendous concentration of nerve endings in our finger tips. This is represented by a similar area in the brain (in the opposite cortex). The face and mouth also have a tremendous representation. There are receptors for pain, touch, temperature and vibration and these sensations are transmitted to the brain via nerve fibers. In addition, there are nerve fibers which convey sympathetic fibers which control sweating and the size of blood vessels in the hand.

The nerve pathways extend along the limbs to the spinal cord and then to the brain. In the extremities they can be compressed by tunnels, muscles, fibrous and bony canals.

As they continued to the higher centers they pass through and connect to areas in the brain concerned with our emotions. We use our hands to express anger, joy and frustration, so that when our hands are impaired there tends to be more emotional problems such as depression, anxiety states, hostility and anger expressed.

One of the important functions of the hand is that of social touching. Human contact is extremely important and when this is disrupted, marked social ties are disrupted. Shaking hands becomes difficult because of disfigurement or pain, and this is also the cause of marked problems.

Regarding the complications of tendon disorders. One of the methods of treating these disorders is with an injection of steroids. We have seen tendon ruptures from inadvertant injection of steroids into the tendons. In addition skin can become depigmented and undergo fat atrophy. When steroids are used to treat carpal tunnel syndrome for tenosynovitis, we have seen accidental injections of the steroid into the nerves. This will cause marked neuropathy. A marked deterioration of the nerve is frequently seen. In addition cartilage deterioration, when steroids have been injected into the joints, have been reported. Steroids have been used for lateral epicondylitis, fraying of tendons and skin changes have been seen after multiple injections. The use of anti-inflammatory medication used for tenosynovitis can cause various gastro-intestinal problems.

OPERATIVE COMPLICATIONS OF TENOSYNOVITIS

deQuervains Tenosynovitis

The purpose of this procedure is to open the sheath for the tendons. The branches of the superficial radial nerve can lay in the path of the incision and must be protected when the procedure is performed. If the nerves are inadvertently severed, an area of anesthesia or numbness will develop distal to our incision. More importantly a neuroma will develop where the nerve is severed. These are quite painful and tender and because of the nerve's vulnerability at the wrist will be quite disabling when the wrist is moved, touched or a wrist band is worn. The surgeon will sometimes make a small incision and does not properly identify the nerve. If he does injure the nerve, he can repair it but frequently the injury is not noticed until the patient awakens. These complications are treated by repairing the nerve or removing the neuroma from the wrist by transferring it under the brachioradialis. If the nueroma is caught up in scar, the pain from the wrist can be transmitted all the way up the elbow and sometimes the shoulder.

Another problem is incomplete severance of the tendon sheath. The reason for this problem is the tremendous variation of the abductor pollicis longus and the extensor pollicis brevis and their sheaths. Studies have shown that in about 75% of the wrists examined aberrant tendons and sheaths were found.

The extensor pollicis brevis is a latent tendon and is absent in about 5% of wrists. There may be a distinct partition separating the extensor pollicis brevis and the abductor. All of the sheaths must be open.

Hypertrophic or tendon scars can be a problem if the incision is longitudinal instead of transverse. Recurrent pain of the scar will occur in some of these cases and there will be a keloid formation. Some of these scars can be very unsightly. Their treatment consists of revising their direction.

Complications that occur after tendon release for tenosynovitis in the fingers include incomplete severance of the canal, injury to the digital nerves and excessive removal of sheaths with bowstringing.

Complication of Compression Syndromes

The complications of this entity can be divided into surgical and non-surgical. The non-surgical problems include inadvertent injection of steroid into the nerve which I mentioned previously. Inaccurate diagnosis can sometimes be a problem and entrapment of the nerve can be found in regions around the elbow or proximal to that point.

The surgical complications include incomplete severance of the flexor retinaculum. Previously many surgeons performed the operation through a transverse incision and cut the structure blindly or made a short palmer incision. Therefore, the symptoms would persist because there was still entrapment of the nerve. The treatment for this is to reoperate and incise the sheath.

Severance of the palmer cutaneous branch of the median nerve has been a source of pain following the procedure. The nerve is located over the radial aspect of the wrists and the nerve will be severed if the skin is incised in the region. The patient will complain of pain and numbness in the thenar region, especially if he extends or flexes his wrist.

We avoid this complication by making an incision over the ulnar aspect of the hand in the area between the palmer cutaneous branch of the median nerve and the palmer cutaneous branch of the ulnar nerve. We treat the neuroma the same way that we did on the radial nerve by re-routing the painful neuroma and letting it fall back into the forearm.

Some patients will complain of pain at the base of the hand even without cutting the nerve. This is called pillar pain and is related to scarred areas at the base of the palm. Some of the recent authors have thought this might be due to our splinting techniques and there is presently a study underway to see if this can be eliminated.

Reflex Sympathetic Dystrophy

This complication occurs after injuries and surgical procedures on the hand. This condition is somewhat common on the hand because of the large number of sympathetic nerves, especially in the median nerve. These conditions are thought to be necessary to have this disorder:

1. Persistent painful lesion - (our surgery)
2. Diathesis - a previous history of sympathetic lability such as hyperhidrosis and some evidence of vaso constrictions such as a pallor or slight synovitis of the fingers or toes. The psychological makeup of the patient, such as anxiety reactions and depressions.
3. An abnormal sympathetic reflex - in the normal situation there is a sympathetic reflex that produces vaso constriction as a response to injury and surgery. This is soon followed by vasodilatation in order to speed the healing phase. The normal vaso constriction may not occur and shut down and a painful localized ischemia may occur. The patient continues to complain of pain and swelling and sweating. The patient also complains of stiffness, especially in the morning. Physical examination revealed tenderness, edema, dysesthesia and redness in the dorsum of the metacarpal phalangeal and proximal interphalangeal joints. The shoulder may also be painful and have marked stiffness. Dr. Kleinert noted that 46 cases of dystrophy after carpal tunnel release. Treatment of this condition consists of early recognition. Steroids are used both intravenously and orally. The abnormal sympathetic response can be broken up with medication or sympathetic blocks. In addition, intensive physical therapy is used and anti-depressant medications are also used. Patients are seen who do not complain of pain, but do develop swelling and stiffness of their joints. These appear to be cases of sympathetic dystrophy without pain. We treat this group with steroids and stellate blocks and have improved their motion greatly.

Other complications include hypertrophic scar, severance of the motor branch of the median nerve. This supplies the thenar muscles of the thumb and it may be

severed if the incision is too far radial. This is the reason that we keep an incision to the ulnar side. The motor or recurrent branch can be given off in an abnormal pattern. In addition, there is sometimes a communication between the ulnar and median nerves.

Other complications which occur with less frequency are:

1. Bowstringing of the tendon - post operatively our patients are splinted to prevent this complication. This splinting occurs for about three weeks.
2. Hematoma formation - this occurs if the superficial palmer arch is severed.
3. Excessive scarring of the median nerve - when the nerve is found to have excessive thickening of the sheath, the outer epineurium will be incised and this sometimes excessive dissection will occur to free these fascicles and this will leave further excessive scarring and pain.
4. Sometimes Triggering has been seen following release of the sheath and this is thought to be due to the change in approach to the tendons to the A-1 pulley.

^{According to} Some surgeons have noted ^{AM} that release of the carpal tunnel was not an innocuous procedure and that some workers have complained of a loss of strength of the inner hand. It was considered that the following conditions would ensue:

1. The cylindrical integrity of the carpal tunnel is lost
2. The origin of the thenar and hypothenar muscles have lost their stable anchorage points.
3. The most important pulley is destroyed, that is a flexor retinaculum
4. A protective roof over the muscles is destroyed

These workers have lost strength and require six to nine months return to work.

In addition the patient has pain and will develop reflex weakness and tend to drop objects. Some of the other residuals of carpal tunnel syndrome include loss of precision of holding objects and inability to write clearly. These patients can also complain of cold intolerance and skin hypersensitivity.

COMPLICATIONS OF ULNAR NERVE ENTRAPMENT

The complications of ulnar nerve entrapment include:

1. Continued weakness of the intrinsic muscles of the hand with weakness of power pinch and power grip. Various problems can occur when surgery is performed and various procedures include transposition above or below the flexor musculature simple decompression and epicondylectomy. Smith and others reveal complications with the anterior transposition. The nerves were frequently found to be caught up in scar or had been partially buried in the flexor muscles. There was also evidence of incomplete release at the level of the intermuscular septum. Neuromas can occur in the region of the scar and be the source of pain. Incomplete removal of the epicondyle in epicondylectomy is also a continued source of pain. Differentiating ulnar nerve entrapment at the wrist, elbow and thoracic outlet can also be a problem. Careful electrophysiological studies are necessary to deluniate these different entities.

COMPLICATIONS OF LATERAL EPICONDYLITIS

Complications of lateral epicondylitis include excessive injection of steroids into the elbow area with loss of subcutaneous tissue and depigmentation. Continued pain has been a problem after surgery and these cases are thought to be due to entrapment of the posterior interosseous nerve, the so called "radial tunnel syndrome".

COMPLICATIONS OF THORACIC OUTLET SYNDROME

Complications of thoracic outlet syndrome include:

1. Wrong diagnosis - many of these are carpal tunnel problems
 2. Scarring of the plexus and continued pain with reflex sympathetic dystrophy
- Any of the conditions that I have listed can be the source of continued pain, especially when the limb is used excessively. This will cause a reflex weakness and the individual will lose his grip and drop the object. This is one of the most common complaints as well as one of the most disturbing complaints of both

industrial and non-industrial cases. The housewife who is unable to hold a pen or heavy object by its handle, will tend to drop the object. These people become anxious about their ability to do their jobs and want relief from this symptom.

I have given you an overview of some of the complications that can occur following cumulative trauma disorders in the upper extremity. The American Society for Surgery of the Hand has had an extensive education program devoted to teaching surgeons and physicians about the proper care and treatment of these conditions.

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ATTACHMENT C

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
STUDY ON MOTION-RELATED WRIST DISORDERS

This study (appearing in the September, 1983, issue of Monthly Labor Review) is a statistical analysis of motion-related wrist disorders. The information for the article was developed from a database derived from state records of worker's compensation claims in calendar year 1979. The authors stress the fact that the number of worker's compensation claims for nonimpact wrist disorders understates the incidence of such cases. In addition, the study covers only 26 states and excludes states like Texas, Ohio, and Kansas which, for instance, have major pockets of meatpacking industry employment.

The study demonstrates the following trends for nonimpact wrist disorders:

- o Nonimpact claims accounted for 6.2 percent of all wrist injury claims, and were more important in manufacturing where they represented 10.5 percent of all wrist injury claims.
- o The average claims incidence per 100,000 workers was 9.4 for all industries, and 23.8 for manufacturing.
- o In comparison, the average claim incidence per 100,000 workers was 498.8 for meatcutters and butchers in packing plants, 101.8 for bottling and canning operatives, 68.2 for retail meat wrapper, and 60.1 for shoemaking machine operations. The study identified these four industrial occupations as among the highest risk in regard to nonimpact wrist disorders. No incidence ratios were available for poultry workers.
- o The incidence of nonimpact wrist disorders claims was 21 times greater in meatpacking, 4 times greater in bottling and canning, and nearly 3 times greater in retail meat and footwear manufacturing compared to the average for all manufacturing.
- o Workers in meatpacking plants experienced the highest and most dramatic incidence ratios for nonimpact wrist injuries.
- o The meatpacking industry accounted for 8 percent of all nonimpact wrist claims, twice as many as any single industry. Poultry dressing plants and grocery stores were also among the top nine industries with nonimpact compensation claims accounting for 2.5 percent and 1.7 percent of all claims respectively.

ATTACHMENT D

INCIDENCES OF REPETITIVE USE CONDITIONS
IN OPPOSITE EXTREMITIES
1978 TO AUGUST, 1986

IOWA BEEF PROCESSORS

Date of Loss	No. of Employees Involved	Facts of Loss, Type of Injury or Disease & State Benefits Applicable	TOTAL ESTIMATED COST		
			Indemnity Paid	Medical Paid	Total Unpaid
08-05-78	1	Bilateral carpal tunnel-open	50,000.00	20,000.00	0.00
09-07-78	1	Pain both arms/hands	19,679.50	5,335.20	0.00
10-24-79	1	Strain Hands/Arms	26,599.00	2,063.00	25,913.00
12-07-79	1	Pain Hands	36,889.00	2,405.00	464.00
08-06-80	1	Pain in Wrists	17,540.00	1,558.00	13,733.00
09-05-80	1	Pain Hands	5,624.00	394.00	56,211.00
01-23-81	1	Bilateral Carpal Tunnel Syndrome	20,933.00	4,547.00	0.00
09-28-81	1	Pain in Hands	19,929.00	11,073.00	5,217.00
10-01-81	1	Pain,numbness both Hands	0.00	143.66	39,346.34
? -01-82	1	Pain Both Hands and Fingers	0.00	1,103.12	55,896.88
02-01-82	1	Strained Both Hands	3,093.44	4,014.11	47,892.45
05-01-82	1	Carpal Tunnel/Hands & Wrists	12,634.24	667.34	59,953.42
09-27-82	1	Bilateral Carpal Tunnel	3,114.00	3,359.00	21,627.00
12-15-82	1	Bilateral Hand Pain	4,080.00	3,830.00	32,290.00
12-22-82	1	Pain Both Hands	45,200.00	7,735.00	265.00
02-04-83	1	Numb Hands	40,260.00	8,132.00	2,318.00
04-15-83	1	Bilateral Carpal Tunnel	4,284.00	0.00	74,716.00
01-29-84	1	Pain Both Hands	846.70	2,895.50	46,233.20
02-01-84	1	Pain & numbness both hands/fingers	1,065.88	3,069.17	42,404.95
12-01-84	1	Pain Both Wrist	0.00	3,286.43	51,713.57
11-21-84	1	Numbness in Both Hands	0.00	0.00	72,867.40
08-15-85	1	Bilateral Carpal Tunnel Syndrome	2,942.08	680.50	29,022.42
		TOTALS	314,713.84	86,291.03	678,084.63
GRAND TOTAL					<u>1,079,089.95</u>

Source: State of Kansas, Division of Workers' Compensations

Note: These are only those cases with costs in excess of \$25,000.

15. Give the following totals for the most recent year prior experience information for each state where qualified as a self-insurer. (Use additional sheet if necessary) If unavailable on a state by state basis, combined totals may be given.

State	Dates		Total Average Number of Employees	Total Gross Payroll	Indemnity Paid	Medical Paid	Total* Indemnity Unpaid (Reserves)	Total Medical Unpaid (Reserves)
	From	To						
Illinois	1/1/85	12/31/85	1231	20,276,702	38,884	144,389	138,980	65,552
Iowa	"	"	1210	26,760,337	42,494	143,717	222,797	136,196
Kansas	"	"	4310	79,937,801	132,437	419,593	1,110,736	257,437
Minnesota	"	"	243	4,785,875	3,883	9,318	16,544	10,055
Nebraska	"	"	5216	77,255,355	167,088	360,630	842,922	932,409
Washington	"	"	1365	25,356,108				

445.52
19202
2,30304
441.50

*For all previous years for payment in future by self-insured and not by insurance carrier.

16. Please give the following information about each Kansas death, disability or disease claim in the past five (5) years with costs in excess of \$25,000. (Use a separate page for full details) See Attachment

Date of Loss	Number of Employees Involved	Facts of Loss, Type of Injury or Disease and State Benefits Applicable	Total Estimated Cost		
			Indemnity Paid	Medical Expense Paid	Total Unpaid

17. Do employees receive any supplemental benefits in addition to workers' compensation benefits? Yes If yes, describe Medical Insurance, Life Insurance, and Short Term Liability.

18. Are there any actual or anticipated Occupational Disease exposures involved in applicant's operations? NO If yes, describe _____

Health and Safety Fact Sheet

Food & Allied Service Trades Department, American Federation of Labor and Congress of Industrial Organizations, 815 Sixteenth Street, N.W., Suite 408 • Washington, D.C. 20006

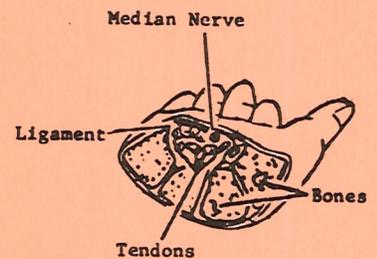
CARPAL TUNNEL SYNDROME

An Occupational Wrist Ailment

In the haste to design a workplace that will speed-up production, commonly the engineers overlook the "workers." Tools and processes are often designed with little or no consideration given to the health and comfort of the worker who does the job. This method of job design has resulted in many work-related injuries and illnesses that are due to poor job design. One of these injuries which is occurring at increasingly frequent rates is **carpal tunnel syndrome**.

What is Carpal Tunnel Syndrome?

The carpal tunnel is an actual tunnel in the wrist formed by bones on three sides and a ligament on the fourth. The 'median nerve' that sends impulses from the brain to the hand passes through this tunnel, along with the tendons that enable the fist to close. When the hand is used repetitively in a stressful position, the tendons inside the carpal tunnel may swell. Since the carpal tunnel is a very narrow space, swelling tendons can compress the "median nerve". Stressful hand movements which may cause swelling include:



The Carpal Tunnel

- Working with the wrist in a bent position
- Pinching or other forceful finger and hand exertions
- Excessive use of the index finger
- Circular twisting of the wrists (wringing action)
- Overly tight grip on tools, such as knives

At first, this compression of the "median nerve" results in acute pain in the hand--often felt at night. Over time this compression of the "median nerve" can lead to nerve damage. Once the nerve is damaged the muscles in the base of the thumb will begin to deteriorate, resulting in the inability to grip objects and partial crippling.

Attachment #2
House Labor & Industry
2/17/87

Who Is Affected?

- Meat Wrappers
- Meatcutters
- Poultry Workers (Boning/Eviscerating/Shackling)
- Cashiers
- Boot/Shoe Workers
- Fish Filleters
- Crab Pickers
- Any other job which involves repetitive movement of the hands

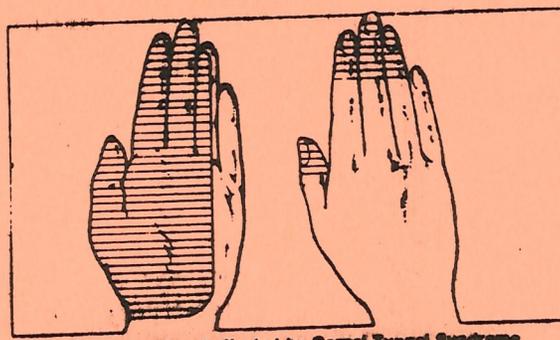
What are the Symptoms?

The most commonly reported symptoms include:

- numbness, tingling, burning sensations in the fingers and hand
- pain
- wasting of the muscles at the base of the thumb
- dry, shiny palm; and
- increased clumsiness of the hands.

These symptoms are most acute at night, and are confined to the first four fingers of the hand. In general, workers are more susceptible to carpal tunnel syndrome when they are new on a job involving repetitive movements of the hand and wrist, or right after vacation, when the wrist is not accustomed to repetitive, stressful movements.

Carpal tunnel syndrome is often misdiagnosed as arthritis. One way to distinguish between the two: arthritis affects the entire hand, whereas carpal tunnel syndrome affects only the first four fingers of the hand (see diagram).



Areas of the hand affected by Carpal Tunnel Syndrome

How Can Carpal Tunnel Syndrome Be Prevented?

Carpal tunnel syndrome can be prevented if it is caught at the earliest possible stage. As soon as workers notice the early symptoms they should see a doctor, preferably a neurologist -- because carpal tunnel syndrome is a disease of the "nerve". If the disorder is diagnosed early enough, and no permanent damage is suffered, relatively simple measures can be prescribed to treat the disease. These may involve wrist splints at night (they are not recommended for day use) and avoiding prolonged bending of the wrist for a period of time. Treating the disease at the earliest stages can prevent it from progressing -- and actually cure the patient.

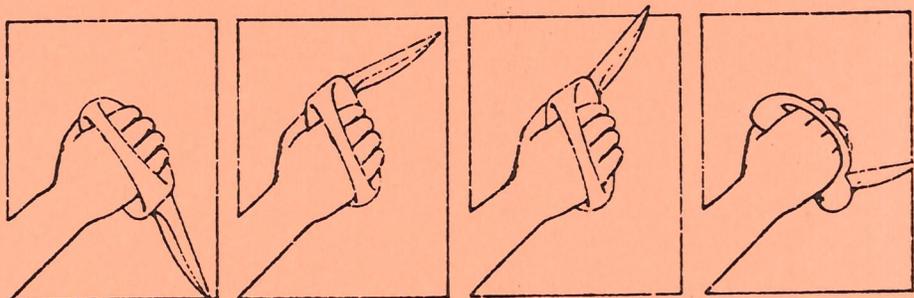
More advanced cases of carpal tunnel syndrome usually require complicated treatments such as surgery or anti-inflammatory drugs -- treatments that may not be successful. These treatments are a last resort and should be avoided if possible. Permanent disability can result even with surgery, and the condition often recurs if the worker returns to the same job. (If surgery is required, workers should be sent to a neurosurgeon when possible.) **Diagnosing and treating carpal tunnel syndrome at the earliest stage is the best guarantee for successful treatment.**

Since carpal tunnel syndrome comes from the poor design of work stations, the cause can differ from job to job. An effort must be made to identify the specific sources of the problems in your workplace. This may involve studying the overall workplace design, the individual job design, and/or the tool design. Some specific suggestions which may result in a reduction in the incidence of the disease include the following:

- In jobs where knives and scissors are used, maintain sharp knives and scissors. Less effort is needed to use the tools and this, in turn, reduces the pressure placed on the hand and wrist.
- Redesign the job environment - i.e., lower or raise the height of work tables, provide platforms for workers to stand on.
- Redesign the job to reduce or eliminate repetitive hand motions.
- Redesign tools to eliminate bent hand and wrist positions.
- Greater training period for workers to increase the strength of hand/wrist.

This last suggestion has actually been tried out in poultry processing plants, where a variety of special knife handles were developed so that each cut could be made with a straight wrist.

Bend the Tool, Not the Wrist.



What to do If You Think You Have Carpal Tunnel Syndrome

- See a physician immediately, preferably a neurologist. Early diagnosis and treatment is crucial to avoiding the crippling effects of carpal tunnel syndrome. If carpal tunnel syndrome is caught early, it can be treated relatively simply by wearing a wrist splint at night, and resting the wrist. **For this type of treatment to be successful, it's crucial that workers see a doctor as soon as they notice the early symptoms of numbness and tingling in the hand.**

In more advanced cases, a person may actually begin losing his or her grip, and surgery may be required. However, workers have had mixed results from surgery -- and it should be used as a last resort.

- If your employer sends you to a company doctor, seek a second opinion.
- Be sure to tell the physician what you do on your job.
- **And most important, contact your union representative, and your local union safety committee.** They can work with management to prevent this condition from occurring in your workplace. And they can help you to file a worker's compensation claim if applicable! Your local union safety committee can also distribute a questionnaire, and gather the information it needs to go for changes.

What Can the Local Union Do?

The local union needs to form a safety committee (picked by the Union) if one doesn't already exist. The union safety committee members should then sit down with management to study the problem and find solutions.

But the first thing the safety committee needs to do is to identify if there is a problem. Several activities can help you do this.

1. Take a look at the employer's Log of Occupational Injuries and Illnesses (OSHA Form 200) to spot cases of sprains, strains, weakness, swelling, tingling and pain in the hand, wrist and forearm. This log identifies employees who were hurt on the job, what job they were involved in, where the injury/illness occurred, and when it occurred. The worker has the right, under OSHA, to see and copy this log.
2. Conduct a workplace walkaround survey to identify jobs which place excessive stress on the wrist and forearm. Look for jobs that require the wrist to be bent to perform the task. Identify jobs that require pinching motions, excessive use of the index finger, circular twisting of the wrists (such as a clothes wringing motion), overly tight grip on tools, and jerky work movements. Also look for chairs, benches and conveyors which are either too high or low.
3. Keep records of individuals who have the disease and where they work.
4. Distribute a questionnaire about CTS to the membership to gather information. The sample below is an example of some of the questions which might be included.

Carpal Tunnel Syndrome Questionnaire

Job Title: _____ Department: _____

	<u>YES</u>	<u>NO</u>
1) Do your fingers, hands and wrists ache or are they numb at night after work?	—	—
2) Do you experience numbness or tingling in your hands during the night?	—	—
3) Does the numbness and/or tingling only affect the first four fingers of your hand (not including the pinky)?	—	—
4) Have you noticed any unusual clumsiness, such as dropping things or having difficulty in buttoning a shirt?	—	—
5) Have you or anyone doing the same job as you had an operation on the wrist or hand?	—	—
6) Do you use a tool on your job?	—	—
7) If yes, do you have trouble gripping your tool?	—	—
8) Do you frequently bend or flex your wrist(s) on your job?	—	—
9) Have you ever been told by a doctor that you have arthritis in your hands?	—	—

Write to the Food and Allied Services Trades Department (F.A.S.T.) Health and Safety Program if you would like more information. We can put you in touch with experts who can assist you in controlling the problem.

NOTE: Some of the changes suggested in this factsheet may affect production standards and there should be a prior agreement made between the union and management so that the changes made are fair to the worker.