## COMMON MUSCULOSKELETAL DISORDERS (MSD's)

### What is an Illness?
### Who is Diseased?

When a physician encounters a person with a sore shoulder, aching back, or painful wrist and numb fingers, it is always a good idea to ask if there is a readily identifiable cause, or if there is more than one possible cause. Our goal today is to give you a sense of the magnitude of the MSD problem. MSD's are very, very common. We also want to show you that sometimes it's not easy to know accurately what is or isn't a work-related MSD.

Every one of the conditions that have been lumped together as "musculoskeletal disorders" (MSD's) can be caused by one or a number of factors not related to work, or can occur with no known precipitant. As this audience certainly knows, if the MSD symptoms are experienced in the work environment, it's the work that gets the blame!

**Our Daily Aches and Pains**

A number of large surveys of various populations have been conducted over the past 35 years, and all have shown that musculoskeletal pain is a common companion for virtually all of us from time-to-time.

1. In a survey[1] of nearly 14,000 people in 4 communities:

   37% complained of joint pain
   32% complained of back pain
   24% complained of arm or leg pain

   the pain was "excessive" or caused "a lot of problems"

2. The annual occurrence of "memorable" pain in a different survey[2] was:

   10% in the shoulder (bursitis, tendinitis, or impingement)
   15% in the elbow (epicondylitis or tendinitis)
   25% in the wrist or forearm (tendinitis, deQuervain's disease, CTS)

3. In yet another national survey[3], the researchers found that:

   Every 6 weeks, 50% of all of us have musculoskeletal pain lasting at least a few days
   Every year, 10% of all of us have a sore arm that lasts at least a month

4. With respect to back pain in particular[4]:

   50% of all adults are limited at least one day a year
   20% have an attack lasting at least a month
   Only 5% of those with back pain ever file a workers' compensation claim

Back pain is a fact of life!

**What is a Musculoskeletal Disorder (MSD)?**

There is as yet no precise definition of MSD's that is accepted by all. The basic definition was one of the questions at Secretary of Labor Chao's Open Forum in Washington DC (please see our comments addressing these issues in Washington DC). It appears that physicians (and maybe employers, someday) are expected to recognize an MSD when a patient or employee presents with one. This isn't so easy. To quote Justice Stewart when commenting on pornography, "I know it when I see it." Ladies and gentleman, I think it's a whole lot easier to recognize pornography than it is to recognize MSD's, especially at first glance.

To label an MSD as work-related, we need to first have a medical history that is compatible with the symptoms that the injured worker is describing. We'd like to see and look carefully for any objective sign (swelling, etc.) besides pain (subjective symptom) in the affected body part. We need to be sure that the disorder has not occurred as a result of a discreet incident. Also, it is really important to eliminate medical conditions that are known to cause the same problem. Finally, when the MSD label is fixed as being work-related, it should be done by a musculoskeletal specialist. All of the above is necessary if we are going to be accurate. That is about as simple as we can make it, but not more so.

We have listed here 20 MSD's that we believe comprise 95% of the total number of MSD's found in most industries throughout the United States; certainly in the industries that SpecialtyHealth takes care of, and that's a very broad array, including the Ralston Foods Plant in Reno, Nevada.

**1. BURSITIS**

- Subacromial (shoulder)
- Olecranon (elbow)
- Prepatellar (knee)
- Calcaneal (heel)

**2. TENDINITIS**

- Rotator cuff (shoulder)
- DeQuervain's (thumb)
- Patellar (knee)
- Posterior tibial (ankle)
- Achilles (heel)

**3. NEAR BONE TENDINOPATHIES**

- Lateral epicondylitis (tennis elbow)
- Medial epicondylitis (golfer's elbow)
- Patellar tendon tendinopathy (jumper's knee)
- Plantar fasciitis (heel spur)
- Supraspinatus tendonosis (shoulder)

**4. SYNDROMES**

- Carpal tunnel (wrist/hand)

**5. SPINE**

- Neck strain

If you can get an understanding of these five broad categories, then you will have taken a tremendous step towards understanding what is or isn't an MSD and this whole situation will become more manageable to you.

We will make available to you resources to help you understand and deal with these five broad categories.

Upper back strain
Low back strain
Sciatica (back-related leg pain)

6. **OTHER**
Stress Fracture

**The problem, of course, is that all the recognized MSD's can also occur as a result of acute trauma, and can be caused by medical diseases.**

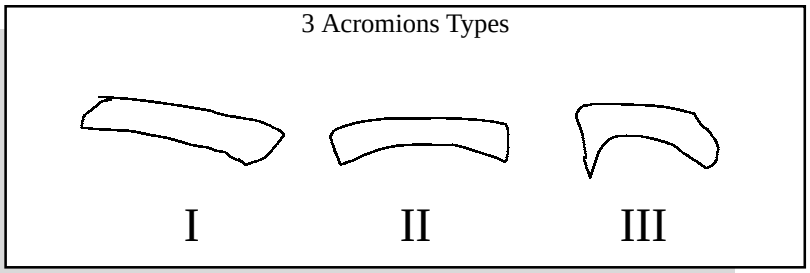
When you see a patient with a pain in a part of her body that is limiting her job performance, you should ask yourself the following questions:

**1**. Is this pain a clue to some underlying medical condition such as arthritis or diabetes?

Example: A sore wrist associated with repetitive use may be due to basilar thumb joint osteoarthritis, present in at least 5% of the population over age 50. The pain is likely to occur with any such use of the hand, at work or at home.

**2.** Is this pain a clue to some inherited or developmental condition that predisposed the patient to this problem?

Example: A person born with a Type III acromion (10% of the population) is very likely to have shoulder problems sometime in their life. It is a good idea to have a person like this avoid overhead lifting or pitching. These are the folks that often go on to have a complete tear of the rotator cuff.




**3.** Is this pain something that is likely to go away just with the passage of time and no specific intervention?

Example: A person starting a new job may have musculoskeletal pain in a body area that is being used a lot more than previously. Studies have shown that continued use with no specific medical intervention generally results in disappearance of the pain over 2-3 months (spring training effect).

**4.** Is the pain a likely result of poor general physical condition, and thus responsive to a general conditioning program rather than a specific workspace modification program?

Example: Workplace studies of people with back and arm pain or carpal tunnel syndrome have shown that poor physical conditioning and/or obesity are stronger predictors of the occurrence of these ailments than any specific job task

**5.** Are there specific work activities that caused or aggravated the pain?

Example: A person with rheumatoid arthritis is likely to have inflammation of the wrist. Overuse of the wrist will cause either pain or numb fingers (carpal tunnel syndrome) that may not have been very symptomatic without use of the wrist on the job.

6. If a patient presents as an injured worker and symptoms seem to be exaggerated or embellished, it is wise to consider other known factors that may make case resolution difficult.

Example: Does the patient hate their boss or their job? This can come out in history taking. Does the patient consider their job demeaning? Have they been involved in the work comp system previously? How long have they been at their current job? Are there other social problems that can affect wellness (alcoholism, gambling, unhappy personal life, death in the family, divorce, etc.)?

In these days of managed care physicians are under tremendous pressure to see large volumes of patients, frequently at a discount; and, oftentimes, these important considerations are not addressed.

We will include in your handout an injury matrix. This matrix is very helpful in sorting out patients and injuries. It makes the point that even the simplest injury can be difficult to manage. The complex injury in excellent patients can be quite manageable and the difficult injury in the very difficult patient is always a challenge for everybody. The work comp patient, as we all know, is a much more difficult patient than the group health patient. We'll also include a marvelous article entitled "Lessons from a Wedding", an editorial by Dr. Lowell D. Lutter. He makes a point about the essence of life being change and talks eloquently about patients who are unwilling to accept this. No group of patients that I can think of is more resistant to accepting the fact that they're not going to be "normal" than the work comp patient. It is a very instructive editorial for all of us – very well done. The third item I want to include is an article called "Knife in the Back". This is a very important article for anybody who is involved in the care of patients with back injuries. It provides an interesting perspective on spine fusion and when it might be indicated for treating back pain. Lastly, we want to reference Nortin Hadler's book, *Occupational Musculoskeletal Disorders*. In his book, Dr. Hadler talks extensively about the failure of coping mechanisms as the root cause of many problems in the work comp situation. We totally agree with that.

I've grouped these four references together for a reason. Together they give us an excellent sense of why the work comp patient is so difficult. Not only that, they also give us tools to help return the injured worker to the workforce and to society. Most importantly, they give us guidelines to help people avoid making bad decisions. Physicians don't learn these things in medical school, believe me. Probably the only way these things are learned is by working with these challenging patients in the work comp situation and getting burned. Gradually physicians come to understand that the work comp patient is often a very different and difficult patient. These patients certainly need more time. They need our best efforts if surgery is required and sometimes, even with the best surgery possible, the results can be stunningly bad. These patients need the support of their employer if we're going to get them back into the workforce. For things to come out well, everything has to come together and we have to work as a team. Even so, in the best of all possible worlds, we'll encounter patients with serious psychosocial disorders who are self-destructive and will defeat us. These are the patients in the lower right-hand corner of the injury matrix that stress us all and cost industry vast amounts of money.

# ERGONOMICS (A MUSCULOSKELETAL SPECIALIST'S OVERVIEW)

**E. James Greenwald, M.D.; Steven G. Atcheson, M.D.; & Jackie Cox, R.N., B.S.N.**

Ladies and Gentlemen:

As you may know, in January 2001 the Ergonomic Mandate was signed into law in the waning days of the Clinton Administration. In March of 2001, the House and Senate overturned the law, passing a Resolution of Disapproval. After ten years worth of work, OSHA was told to go back to the drawing board and start over. In the view of some of us (me included) this was probably a good thing, especially when you looked at the original mandate and saw the incredibly broad range of conditions that were being listed as MSD's (musculoskeletal disorders). There was no particular order or logic to the presentation of what was called an MSD. One thing that really disturbed the employers in Reno, Nevada, was that the original mandate, they felt, put them in the role of the physician in that they had to make the diagnosis. Work was always assumed to be the cause of MSD's and other known precipitating factors were not allowed to be considered. Every problem, every ache and pain were deemed to be related to work. The primary solution was supposed to be an engineering solution. In our view, this was a fatal flaw in the original mandate. Employers that we worked with hated this. We had worked with many of them for a long time and they understood the value of sophisticated musculoskeletal input.

After the original mandate was overturned, SpecialtyHealth worked closely with our local OSHA representatives in 2001 and put together a program that OSHA has deemed to be "effective" (see enclosed letter). Recently, OSHA has stated that they will not focus enforcement efforts on companies with effective ergonomics programs in place, so our early efforts were rewarded. As we worked through the problem, both the people from OSHA and the physicians working on this project saw that order could be created out of the chaos. We developed our own taxonomy (classification system) for the MSD's and, at OSHA's request, developed a tracking and trending system so that we could monitor what was going on. Everything came together nicely and, as the work progressed, it became apparent that a great deal of sense could be made of this problem by looking at the five broad categories that we've listed. We ultimately realized that by using these five broad categories we could sort out virtually all the MSD's that can occur in any business. The five categories are: 1) bursitis, 2) tendinitis, 3) near-bone tendinopathies (don't get scared), 4) the syndromes, and 5) the spine. Others may be added that are specific to certain industries so that in the end each industry or company has its own individually tailored program. This eliminated one of the very strong criticisms of the original mandate, that it was a "one size fits all" program.

Later in 2001, SpecialtyHealth was very lucky to have extensive contact with Bill Mullen, a risk and safety expert who is a Vice President at AON. He has taken care of WalMart's ergonomic issues exclusively for the past seven years. The El Dorado Hotel and Casino and WalMart were the two companies that went to OSHA with us as we first developed the program. Our joining with Bill helped to fill a void for both SpecialtyHealth and him. Bill has made the point repeatedly that medical input was not adequate in any of the ergonomic or employee safety programs that he had seen to that date, and he's been all over the country. We worked together with Bill to develop ergonomic programs for employers in the Reno area and, perhaps, well beyond. What Bill brought to the program was exposure-based ergonomics and SpecialtyHealth brought injury-based ergonomics. For an ergonomics program to be complete, you really need to have both elements addressed and then you need to track and trend all the data. You also need to be able to logically deal with problems from all areas of the body. This project was a big undertaking. Bill spent a lot of time in Reno during the summer of 2001.

I'd like to comment briefly on these five categories, then close by mentioning the big three: carpal tunnel syndrome, spine problems and shoulder impingement. I'll give some references so that when specific questions arise, you can investigate in more depth at your leisure. Again, the one book we would recommend to you is *Occupational Musculoskeletal Disorder,* by Nortin M. Hadler. It is not an easy read; it's not the kind of book you want to read from start to finish unless you're a unique person. You'll find that if you're investigating a specific problem, this book can be a very useful reference, particularly Chapter 16, "Complaints of the Aged Worker and the Working Poor" and Chapter 13, "Coping with Arm Pain in the Workplace". Also, Dr. Hadler's work on the spine is wonderful.

My partner, Steve Atcheson, has done fundamental work on the carpal tunnel problem, viewing this syndrome in a different way. We'll give you two of his references and include them with the handout. In my view, Charles Neer has done more to define the impingement syndrome in the shoulder than any other physician. I've taken the liberty to take one of his classic articles and update it for the year 2002. We believe that the Health & Human Services handout on back problems is excellent, so we will also include a copy for you.

The five broad categories cover virtually all the MSD's that you will ever come into contact with in the workplace:

**1.** **BURSITIS** – Bursitis is a very common human problem. Bursitis means that a bursa swells and develops fluids. A bursa is the body's equivalent of a ball bearing, reducing friction between moving parts. Bursal sacs are present all over the body. They're often named according to the anatomic spot in which they present. For example, in the shoulder the bursa is underneath the bone called the acromion, so it is called a subacromial bursa or bursitis. In the elbow, a bursa is commonly seen over the tip of a bone called the olecranon; it is therefore called an olecranon bursitis. In the knee, a bursa is commonly seen in front of the kneecap or patella and is called prepatellar bursitis. When you have a bursitis, I don't care if it is the shoulder, the elbow or the knee; it is the same problem. It's just a different location. Can these be caused by work? Of course, carpet layer's knees being an example. This is an inflammation of the prepatellar bursa, the bursa in front of the knee, caused by the worker repetitively jamming his knee against a tool called a kicker that allows the carpet to be tightened.

The important thing to remember in the vast majority of cases when a bursa is identified is that it is readily treatable. In mild cases, the use of non-steroidal anti-inflammatories and eliminating the friction that is the cause of the bursa in the first place. As the bursa becomes swollen, fluid can be removed from the bursa, which is important to make sure that it isn't infected or that other bad things going on are eliminated. It can be treated. In extreme cases, and this is rare, the bursa can be removed surgically if it becomes particularly troublesome. Except for the shoulder, it is rare that a bursa profoundly affects the function of the surrounding anatomy. Generally a bursa is considered a painful nuisance.

The real question is when is a bursa work-related. This question goes to the basis of our ergonomics program. We would think a bursa might be work-related if: 1) There was an appropriate clinical history compatible with the development of a bursa and work-related activities, 2) If the bursa was appropriately treated and resolved and then resumption of work activities led to the recurrence of a bursa (in this scenario, this would be called an "action trigger"). If there were a recurrence of a bursa associated with a known work-related activity, this would trigger a bursa being listed as an MSD. We would recommend appropriate medical treatment of the bursa and also look at job-related activities to see if we could eliminate the offending cause. Usually this is not too difficult to accomplish.

**2.** **TENDINITIS** – Words that end in "itis" mean that the preceding element of the word (tendon in this case) has developed inflammation. Tendinitis, an inflammation of tendon. Once again, just like the bursa, we have tendons all over our body and virtually any tendon can become inflamed - can develop an "itis". Some common tendon problems that were listed in the original ergonomics handouts included deQuervains tendinitis. This is an inflammation of two of the tendons that go over the radius to the thumb. Bicipital tendinitis is another common tendinitis, as is supraspinatus tendinitis (tendinitis in the shoulder) and patellar tendon tendinitis (inflammation of the tendon around the knee), or Achilles tendinitis (inflammation of the Achilles tendon as it inserts into the heel). It is the same basic process going on all over the body named for the body part affected.

Treatment is usually rest, ice, elevation and anti-inflammatory medicines. In some cases splinting is used to quiet the tendon down. In the case of deQuervain's tendinitis, a steroid injection can give dramatic and long-lasting relief. The same process can happen in the shoulder (rotator cuff tendinitis). Once again, the question becomes when is a tendinitis work-related. This would be a situation when there is an appropriate clinical history taken by a physician, accurate diagnosis of a true tendinitis and treatment that has been medically appropriate. After all this has been accomplished and the tendinitis returns after the resumption

of work activities, this is our action trigger. If this were the scenario that evolved, looking at a jobsite would be a reasonable thing to do. Making changes to eliminate the problem would be appropriate. This is only common sense.

1. **NEAR-BONE TENDINOPATHIES** – Near-bone tendinopathies is a new term that will be very important in the future. This is a term that we use to describe tendons that are undergoing change of some sort, either at the molecular level or more dramatic degenerative change near the bone where the tendon inserts. There are many examples of this in the human population. Tennis elbow is a near-bone tendinopathy that occurs on the outside of the elbow. Golfer's elbow is a tendinopathy that occurs on the inside of the elbow. Patellar tendinopathies in the kneecap region are very common in basketball players (jumper's knee), baseball players, and many athletes (we suspect that Mark McGuire had this type of tendinopathy). There are tendinopathies that involve the Achilles tendon that can be particularly difficult to treat. Any tendon near where it inserts into the bone can be vulnerable to develop change within the tendon substance itself that can be painful and make normal human functioning difficult. Let's use tennis elbow as an example. Up until the last few years, this was called lateral epicondylitis, but that's really saying it wrong. As we noted above, an "itis" means inflammation and this is a tendinopathy. A better term would be a lateral epicondylosis or degeneration of the tendon at the lateral epicondyle. This makes more sense. It's important to differentiate these two terms because the treatment is different.

   The treatment of tennis elbow is well known to many of us. Initial treatment of this painful problem is rest, splinting, ice and perhaps non-steroidal anti-inflammatory agents. Non-steroidal anti-inflammatory agents are used in this case more for their pain relieving ability than for anti-inflammatory properties. Sometimes splints are used, counter-pressured bands that are so commonly seen, and sometimes steroid injections can be helpful. A new treatment that physicians all over the country have been very anxious to utilize has just been FDA approved in the United States. The Siemens Company developed a machine that they call Sonocur. Information on this technology can be obtained at a very nice website www.sonorex.com. This Sonocur machine uses the same technology as lithotripsy machines use to dissolve kidney stones by delivering a shockwave directly to the involved area of the tendon. Initial results from Europe, particularly Germany over the past eleven years, and Canada over the past 5-6 years have been extremely encouraging. At SpecialtyHealth we believe that this technology is going to change EVERYTHING about the way we deal with the near-bone tendinopathies that cause such problems in the work environment and also the population as a whole. It is very important that everybody in this conference realizes that if physicians can treat and cure tennis elbow with a Sonocur machine, a claim can be closed with no residual disability; in other words, no PPD rating. This is important, of course, because the same scenario wouldn't evolve if surgery had been performed. Ladies and gentlemen, I want you to know that in Canada, the workman's compensation board requires that any patient with these types of tendinopathy problems be treated first with Sonocur. Surgery for the near-bone tendinopathy is no longer done. The treatment is done as an outpatient procedure, no anesthesia is required and it appears that there is an excellent chance that we can cure these patients. What a wonderful medical advance!

   Again, how would we determine if a near-bone tendinopathy were truly an MSD. We would look for the appropriate clinical history and have the patient go through an appropriate, well-recognized treatment program. If the patient was re-exposed to a job that was a possible offender and the problem recurred, most reasonable people would think that this near-bone tendinopathy represented a true MSD.

4. **SYNDROMES** – A syndrome is a specific grouping of symptoms (what you tell the doctor) and signs (what the doctor finds when an exam is done) that gives the doctor an idea of what is causing your troubles. The most important thing to remember is that **a syndrome is never a disease**; rather, a syndrome is a clue to a disease. Any syndrome can be caused by many different conditions. Carpal tunnel syndrome (numbness, tingling and pain in certain fingers of the hand) has dozens of well-known causes, including pregnancy, diabetes, thyroid disease, and arthritis of the wrist. Any of these conditions can put pressure on the median nerve (which goes through the middle of the wrist) and make the fingers go to sleep. Whether work, all by itself, causes carpal tunnel syndrome (CTS) has been the subject of intense debate in medical circles for over 15 years.

first place. Research has shown that perhaps half of all patients who have been told they have CTS really don't have it at all. It is hard to cure something that isn't there. Many patients who think they have CTS really have tendinitis and near-bone tendinopathies of the forearms and elbows – conditions that are usually easy to treat. Of those patients who really do have CTS, about two-thirds have an identifiable medical condition known to cause CTS irrespective of any work activities. These patients need medical treatment first, because the solution to their problem is medical, not ergonomic and not surgical. You can't cure CTS caused by diabetes with an adjustable keyboard. Medical treatment of medically-induced CTS is curative in 98% of all cases, and no permanent change in job demands or task design is needed. We are convinced that the high rate of failure of CTS treatment reported in the workers' comp literature reflects misdiagnosis and inappropriate treatment. The fault lies with the medical system, not with the employee or the job.

5. **SPINE** – Of all the afflictions of mankind, back and neck pain, next to the common cold, cause more distress more often throughout our lives than any other problems. If you live long enough, you're going to get a bout of back pain, and sometimes it will make it hard for you to do your job or enjoy yourself at home.

   80% of all episodes of spine pain can't be traced to any specific incident. Only 5% of all attacks of back pain suffered while at work ever turn into workers' comp claims. So when is back pain on the job an MSD? There is no medical answer, so our approach has to be different. Most of the time, a neck or back pain claim won't be accepted as work-related unless there was a specific, defined incident on the job that triggered it. Also, by definition, MSD's don't result from trauma to the body (a fall or rear-end collision, for example). So, we have restricted our scope to strains caused or aggravated by twisting, bending, or awkward postures. The SpecialtyHealth tracking and trending system can identify clusters of these occurring in specific locations at the workplace. These are situations where ergonomic intervention at the job site may be very effective, because neck or back pain in this setting is rarely a medical disease requiring a specific medical approach. These people do not need anything more than simple and inexpensive symptom relief, education, and reassurance about their predicament - that it's not so bad and it's a fact of life. A thoughtful and experienced ergonomist is far more valuable here than a doctor.

   For your employees complaining of sore backs, more than in any other condition discussed here, employers need to remember Dr. Nortin Hadler's advice: strive to provide "a workplace that is comfortable when we are well and accommodating when we are ill" You help your people cope; Nortin Hadler's big point. If you succeed then we guarantee that your workplace will be happier and your comp costs will go down – a lot.

**INDUSTRY-SPECIFIC MSD'S** – Wouldn't you know it, there just had to be more to this? As we were putting into place our first ergonomics program at one of the hotel/casinos in Reno and did a survey of injuries that had occurred, we found a category of injuries that were clearly ergonomically related. No question about it. And, it wasn't covered in any of the literature that OSHA had produced in the original mandate. No where did we find a discussion of stress fractures. Almost all of the casinos in our area allow their patrons to valet park. A young, healthy individual frequently takes their car and parks it. When the patron is leaving the casino, this individual runs to get their car to bring it back to them. Over the years, we've seen at least four stress fractures that involve the foot and tibia in these young, healthy people that involve running on concrete sometimes in poor shoe wear. There is no question about the repetitive nature of this injury. There is no question about the history or the clinical findings. And, there is no question in our mind that stress fractures in situations like this represent a true MSD and need to be recorded as such. Therefore, the "OTHER" category is included.

We suspect that every company will have a different set of injuries that are unique to that company. These might well be listed in our tracking and trending programs as occurring under "OTHER". We will include a graph that shows the stress/strain curve for metal and bone. We found in our discussions with ergonomists that they are very comfortable with this graph. Orthopaedic surgeons are comfortable with this graph as it relates to stress fractures. It provides a nice bridge in understanding between the orthopaedic surgeon and the ergonomist as it relates to areas of common interest in engineering.

## THE BIG THREE (OR, WHERE DID ALL THE MONEY GO)

Ladies and gentlemen, if we were to tell you to focus on three areas that we think are really important for your understanding of the issues, they would be the following:

1. **CARPAL TUNNEL SYNDROME** – Recent research has helped us to understand that carpal tunnel syndrome is rarely an ergonomic injury, and often misdiagnosed. Making sure that your medical people see it that way can save industries huge amounts of money. We'll include Steve Atcheson's paper, "Carpal Tunnel: Is it Work Related?" and his basic study of over 300 consecutive cases (and now 500 total cases) of carpal tunnel syndrome.

2. **THE IMPINGEMENT SYNDROME** – I have taken the liberty of using some of Dr. Charles Neer's work and updating it for 2002. I think it is so important in defining the natural history of shoulder problems, particularly the impingement syndrome, and letting us understand what is or is not work-related. This is included for your review.

3. **THE SPINE** – We recommend that Dr. Hadler's views of spine problems and the psychosocial implications of a worker with a spine problem be considered very carefully along with the medical component. This is so important for saving vast amounts of money. We're going to include the Health and Services handout on care of the spine, which we think is excellent.

Thank you very much. We hope this overview is helpful to you. Further information can be garnered from our website at www.specialtyhealth.com, including all the letters that have been written through the entire evolutionary process of our thinking on ergonomics. We will particularly call your attention to the presentation to Secretary Chao at the Washington DC Open Forum as a document to help you understand our basic ergonomic philosophy.

EJG/le

# Carpal Tunnel Syndrome (CTS)

## What is it?

Carpal tunnel is caused by compression of the median nerve that runs through the middle of the wrist. CTS **always** causes numbness, tingling, or pins-and-needles sensations in the thumb and first 2 or 3 fingers. Contrary to popular belief, wrist pain is often not present in CTS. **If your fingers aren't numb you do not have CTS.** CTS can be caused by many different medical conditions, including pregnancy, diabetes, wrist arthritis, and thyroid conditions. While work does not cause CTS, the work that you do may aggravate the symptoms of CTS. All of these possibilities along with work activities must be addressed if we are to effectively help you deal with the condition.

## The best strategy to prevent CTS

Movement is a natural way to avoid nerve compression, so the best strategy against nerve compression is frequent movement and small stretch breaks. Stretches should be done slowly and gently. (See picture of stretches for upper body use)

Recovery time is also important during non-work hours. Give your body time to rest, especially your wrists if your job requires high use. This may reduce the time your hands go numb.

Here are some tips to minimize body positions that are likely to irritate the nerves:

- Wrist position: Keeping the wrists bent may increase pressure on the nerve. Keep your wrist straight and close to your body when working. This gives the nerve the most "slack".
- Reduce external pressure: Use wrist rests and mouse rests to rest between inputs. Do not rest on these devices while keying. The constant pressure can irritate the nerve and also cause wrist pain due to awkward wrist movements.
- Relax: Stress tightens muscles around the nerve like a fist. Position yourself comfortably at your workstation and change that position frequently. Breath deeply and apply other relaxation techniques to help reduce stress as needed.
- Maintain natural body positions: Use the back and lumbar support your chair provides. Don't hover over your keyboard. Avoid extended repetitive reaches or awkward bends like cradling a phone with your neck or extending unnecessarily to access your mouse.

## Wake up call!

Addressing the early warning signs is important and if done may eliminate the need for medical treatment. **We now know that CTS often comes and goes away on its own. Permanent nerve damage is extremely rare in CTS.** You are in the best position to recognize the early symptoms of CTS. Feelings of mild tingling, numbness or an ache in the limbs can be a wake up call for you to assess and consider the following:

- Your body is telling you it needs some recovery time. Assess your on the job and off the job activities and determine how that body part can be rested. Example: (work lately has required a lot of ten keying and I knit and use my personal computer at home frequently) If this is your routine you are not giving your wrist enough recovery time and your wrist is telling you that. Take control and give your wrist a chance to recover.
- Keep fit and consider other conditions you have that may be contributing to these signs and symptoms.
- Keep good circulation flowing and as you recover consider doing strengthening exercises to build up the muscles and tendons around these joints.

## SIGNIFICANT FACTS ABOUT BACK INJURIES

Back injuries are second to the common cold as reason to seek medical care

12,000,000 visits to physicians yearly for back pain

2,750,000 visits to orthopedists yearly for back pain

50,000,000 visits to chiropractors yearly for back pain

**Most back strains (majority of injuries) will do well with "benign neglect" (observation/support)**

Two months after injury only 5% CONTINUE with symptoms

Only 2% of an average work forces report a back injury yearly

10% of the people injured make up 80% of the costs

Low back pain (LBP) disability
- 2-3% of population
- rate increasing disproportionate to growth of population

Disabled characterized by
- lack of organic findings
- psychosocial dysfunction
- other pain complaints
- compensability
- poor response to treatment

Surgery rate is 7-10 times as great in US as UK (similar population types)

**$90,000,000,000[5] yearly cost for LBP in USA**
**85% of total cost is in disabled group**

The classic large Herniated Disc with sciatica (leg pain) in a well motivated patient is an excellent opportunity for surgery to succeed, for the physician to look good, and for the patient to be grateful for his care.

It is important to differentiate sciatica (mainly casing severe leg pain) and back pain when discussing outcomes or reviewing data on "back injuries".

Past 30 years:
- No increase in incidents rates
- Disability claims up 14 times the rate of population growth
- 8 out of every 10 people will suffer back pain.

## Closing Comments on the Treatment of Sciatica with Remicade