



## Volume 15

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## JUST BECAUSE

### TAKING OUR PULSE

In this issue we will take a look at some causation issues. This will be approached from a clinical/scientific perspective, and will not address the complex jurisdictional regulations that may apply in causation and compensability determinations in various states. These considerations are certainly important but are well beyond the scope of this newsletter.

### JUST WHAT THE DOCTOR ORDERED

A **cause** is something that results in an **effect**. However, that same "cause" may not **always** result in the same effect. Physicians and statisticians in the occupational arena speak of the probability that two events are causally related, and that probability may be high or low. Probability can be established quantitatively through well-designed studies which estimate the level of risk that event A will result in event B. Please refer to the Medigram of November 2014 for a more detailed discussion of the science behind evidence-based medicine.

And of course, association does not necessarily imply causation, i.e. the fact that events A and B occur concurrently/sequentially, does not mean that event A resulted in event B.

To complicate things even further, a condition may be caused by multiple factors, some of which may be occupational, and others non-occupational, and one is often required to estimate the impact of various factors in producing the effect. And even if a workplace factor does not cause a condition it may (temporarily) exacerbate the pre-existing condition, or (permanently) aggravate it.

So what are the steps in evaluating causality in a particular claim?

“Health care providers are often asked whether a condition is work-related or attributable to a specific event. It is incumbent on clinicians to give an opinion based on a careful review of three critical pieces of information:

1. Individual clinical findings.
2. Individual workplace exposures.
3. The literature linking (or not linking) the exposure of concern and the condition in question.”<sup>1</sup>

Unfortunately, the last element is often overlooked or downplayed in the claim analysis process. So, with respect to point 3, what does the literature say about some common conditions that are often seen in the workers compensation arena? These are just a few highlights, but for some light reading enjoyment, please peruse the full 792 pages of the **AMA Guides to the Evaluation of Disease and Injury Causation**.

### **Spine:**

- Sambrook et al used a cohort of mainly female UK and Australian twins unselected for low back pain and reported that overall heritability was 73% for cervical disc degeneration. Using the same population, McGregor reported a significant genetic effect on neck pain.
- There is insufficient evidence for heavy physical work as a risk factor for neck pain.
- Primarily cross-sectional studies have shown a relatively strong association between obesity and the prevalence of chronic pain in the neck, shoulder, and low back, especially among women.
- Age was identified as potentially the greatest risk factor, with statistically significant increased risk among successive age groups, and this was consistent with other epidemiological studies that examined the incidence and prevalence of cervical radiculopathy.
- In recent years, our understanding of genetic influences on the risk for disc degeneration has changed traditional views. More current research, primarily studies of twins, suggests that physical loading specific to occupation and sport plays a relatively minor role in disc degeneration. Disc degeneration is now considered a condition that is determined largely by genetics. As a result, previous interpretations of the effects of heavy physical loading on changes in the disc have been challenged and remain inconclusive.

### **Carpal Tunnel Syndrome (CTS):**

- Combination of risk factors (e.g., force and repetition, force and posture): very strong evidence; national and international epidemiologic surveillance data has consistently demonstrated that the highest rates of CTS occur in occupations with high upper-extremity physical demands, including meatpacking, poultry processing, automobile assembly work, and other occupations requiring intensive manual exertion of distal upper limbs.
- Vibration: low risk evidence
- Forceful work: very strong evidence
- Keyboard activities: insufficient evidence
- Age: very strong evidence; risk increases with increasing age
- BMI (overweight): very strong evidence; high BMI increases risk
- Gender: very strong evidence: female
- Diabetes: very strong evidence
- Genetics: very strong evidence

### **Knee (meniscal tears)**

- In the First Edition of this book, there were conclusions that there was insufficient evidence that climbing, driving, kneeling, lifting, sitting, squatting, standing, and walking caused meniscus disorders. The updated search confirms the prior conclusions. However, there may be an increased association of degenerative knee disorders with carpet layers and floor layers, but further research is required prior to assigning causation of meniscus disorders to any occupation. Furthermore, the development of degenerative meniscus tears, as discussed, is known to be related to aging.
- Overweight: The weight-bearing forces on the knee may vary from 3 times body weight to 6 times body weight with stair climbing; there is strong evidence for both men and women with an increasing

BMI for degenerative meniscus tears.

- Age: With increasing age, the knee meniscus, like other soft tissue structures, changes in physiology
- Causation of a degenerative meniscus tear does not typically occur from an isolated traumatic event.

The take-away message is that all but the most obvious (alleged) workplace injuries deserve careful scrutiny, and potentially a clinical review. Attention must focus on the mechanism of injury, pre-existing conditions, age, gender, comorbidities, family history, and the scientific research on causation.

## CIRCULATING IN THE PRESS

“There are some 210,000 unnecessary CTS surgeries each year, at a cost of roughly \$1.5 billion, much of it covered by workers comp.

Carpal tunnel syndrome (CTS) has caused a firestorm of controversy in recent years. CTS is a perfect example of how popular beliefs are not supported by medical evidence.

Although the popular belief is that keyboard use causes CTS, the science shows otherwise. Nine studies have reviewed this relationship, including ones by the Mayo Clinic, Harvard Medical School and a Swedish study reported in Orthopedics Today. The scientific research shows that keyboards are safe to use and do not cause CTS. Furthermore, keyboard design had no effect on the incidence of CTS. Symptoms may increase with many activities, including the use of keyboards, but keyboards do not cause CTS.”<sup>2</sup>

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“Occupational health professionals are routinely called upon to manage LBP (low back pain) in patients who report that their condition was caused or made worse by a physical activity performed at work. Clinicians must often attempt to estimate the degree to which an occupational physical activity could have contributed to the onset or exacerbation of LBP. Their assessment thus serves many purposes, including legal considerations (e.g. adjudicating worker’s compensation claims) and the recommendation of return to work modifications, both of which carry not only economic consequences but might also influence the prognosis of LBP.

Low back pain is a common occupational concern. Although a recent comprehensive systematic review, presented in eight systematic review reports, uncovered a large body of scientific literature on this topic, there was no strong evidence to support a causal relationship according to the Bradford Hill framework between bending/twisting, awkward postures, sitting, standing/walking, carrying, pushing/pulling, lifting, manual handling/assisting patients and low back pain.”<sup>3</sup>

## REFERENCES:

- 1) AMA Guides to the Evaluation of Disease and Injury Causation, Second Edition, Copyright 2014.
- 2) “Carpal Tunnel Syndrome: It’s Time to Explode the Myth”, Daniel Miller, <http://www.insurancethoughtleadership.com/articles/carpal-tunnel-syndrome-its-time-to-explode-the-myth#axzz2wDvadLV2>.

- 3) "Systematic review: occupational physical activity and low back pain", B. K. Kwon, Occupational Medicine, doi:10.1093/occmed/kqr092.