Three SIMPLE Questions to Assess Work Relatedness of Non-Traumatic Conditions!

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But before we get to them . . .

*What defines work causation in general?*

- Must arise out of and in the course of employment
- Doctor must have reasonable degree of medical probability (“51%”)

*Simple enough . . .*
But then it gets complicated! Because, 3 Different Kinds of Causal Relationships Exist

- An event DIRECTLY caused an injury
- An event INDIRECTLY caused an injury by way of PRECIPITATION, AGGRAVATION, AND ACCELERATION of pre-existing condition. . .
  “We are NOT here concerned with an occupational disease”

- No event happened – WORK EXPOSURE had at least a material contribution to the condition’s onset or progression (Here, we ARE concerned with an occupational disease)
Worker Comp cases are either **INJURIES** *(Direct or Indirect)* or **ILLNESSES*, depending on whether or not an EVENT occurred:

That makes Carpal Tunnel Syndrome an **ILLNESS??!!**

Thank Goodness for the 3 *Simple* Questions!
First keep in mind . . .

• In any Worker Comp case, the symptoms must come from an injury or an illness, and not from mere discomfort for example
  – A diagnosable condition must cause the symptoms
  – And in any case in which no event had occurred, then that condition must represent an Occupational Illness

THESE THREE QUESTIONS MAKE THIS SIMPLE . . .
They’re Only Simple if Everyone Agrees on the **S.O.S.**

- “With or without pre-existing condition, was exposure a material contributory causative factor in the *condition’s* onset or progression?”
  
  - The question is **not** “did the *exposure* cause the *symptoms*?” Instead:
  
  - “Did the *exposure* cause the *condition* which has caused the symptoms?” That is, the Source Of Symptoms (SOS) is an occupational illness, and not some other type of illness
Don’t go Fishing for a Diagnosis

Carpal Tunnel Syndrome
Carpal Tunnel Syndrome – how to tell it’s present

• Look for its Specific Pathophysiology
  – Median mononeuropathy on EMG
    • secondary to post-ischemic tenosynovial hypertrophy
    • causing increased pressure within the carpal tunnel
How to Know if it is the SOS

• Look for its *Specific* symptoms:
  – **Classic/probable** – P/N/T in two or more of the first three digits
  – **Possible** – P/N/T in at least one of the first three digits
  – **Unlikely** – No symptoms in any of the first three digits
On the OTHER HAND:  
Nonspecific Work Related Upper Extremity Disorders - Work Related, but NOT an illness

- More generalized
- Nonspecific, variable pain
- Symptoms that do not correspond well to classic musculoskeletal conditions
- Common in workplaces
- Symptoms without pathophysiology
- Symptoms without illness (except when they complicate another specific musculoskeletal condition)
Nonspecific Are Far More Common Than Specific!

• The most common diagnostic category associated with repetitive motion “injuries”
• 47% of cases thought to be related to ongoing work exposure are nonspecific (Himmelstein, 1995).
• This category was at least 3 times more common than any other specific disease entity.
PLUS the State makes PROGRESSION of the condition compensable

• Trouble is, conditions can progress on their own

• Work related progression MUST mean that working worsened the condition itself, and did not just unmask symptoms (mere manifestation)
This is getting too complicated . . .
time for 3 simple questions!
The 3 Questions

1. Can it?
2. Does it?
3. Did it?
WAY simpler than the Bradford-Hill Criteria for Causality, from which they originate

- In 1965 Sir Austin Bradford Hill composed a list of criteria to help evaluate whether an observed association between an exposure and an outcome is likely to be causal. These are now commonly known as the Bradford Hill criteria. Although none of the criteria alone can prove that a relationship is causal, used together, they can help make an overall judgement about whether a causal relationship is likely.
Causal Analysis of Hand Numbness Using the 3 Easy Questions:

CAN IT?
DOES IT?
DID IT?
“CAN IT?”

CAN this condition arise from work exposure?

• This depends on the **pathophysiology** of the condition. Example:
  – Sx: Pain/Numbness/Tingling in first 3 digits
  – Source of Sx: median mononeuropathy at the wrist; a.k.a carpal tunnel syndrome
  – Pathophysiology: increased intracarpal pressure

• Work exposure CAN increase intracarpal pressure
“DOES IT?”
DOES this condition occur more often in certain types of work?

- This relates to the *epidemiology* of the condition
- e.g. – epidemiologic studies show that among large groups of workers exposed to forceful use of the hands, vibration, and segmental vibration exposure, carpal tunnel syndrome DOES occur more commonly
GENERIC ERGONOMIC RISK FACTORS FOR SPECIFIC UPPER EXTREMITY DISORDERS

• Force – Cofactors:
  - Cold temp
  - Ill fitting gloves
  - Vibrating tool
• Repetition
  - Short job cycle (<30 sec)
  - Lack of recovery time
  - Stereotyped action
• Malposition
• Localized mechanical compression
Examples of High Repetition – Movements Per Minute

- Shoulder 2-3
- Elbow 10
- Wrist 10
- Finger 200

The above are very approximate
DID IT?
In this particular case, DID the work exposure contribute in a material way?

• This relates to the **chronology** of the case.
• Exposure must precede development of the condition, with no evidence of having had this condition prior to employment (at least to this same extent)
Competing Causation:
Consider these when “DID IT?” seems unlikely

- Prospective 17 year longitudinal study shows four-fold increase when BMI greater than 28.5 (Nathan 2005)
- Tobacco use doubles risk
- Genetic contributions:
  - Family History of CTS 3x more common in CTS cases than controls (Radecki 1994)
  - Twin studies show genetic contribution which explains “up to half of the liability to CTS” (Hakim 2002)
Non-Occupational Risk Factors for CTS

• Increasing age
• Female gender, pregnancy
• Being overweight or obese
• Wrist fractures, dislocations or other abnormalities
• Medical conditions-arthritis, diabetes, thyroid disease, nerve diseases, etc.
CTS & repetitive work example (OR=1.9)

• For every 19 people with CTS who do repetitive work:
  – 9 are “extra” cases BECAUSE OF repetitive work
  – 10 would have had it anyway!
  – How can you take any one of these 19 and say “more than 50% likely” that they are one of the extra 9 and not one of the 10 “anyway” cases?
  – Exposure to repetition is a necessary but NOT a sufficient cause
  – There also have to be OTHER case-specific facts (e.g. – timing of onset after increased exposure; alternative explanations are less likely)
Remember the 3 easy questions, and their 3 “-ologies”

• CAN IT? – Pathophysiology (CAN this condition arise from work exposure?)
• DOES IT? – Epidemiology (DOES the condition happen more often among large groups of people in the same type of work?)
• DID IT? – Chronology (DID the facts and timing of this case make work seem material v. immaterial?)