

What is the cause?

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Causal questions

- Mostly about cause of pain, disease, mental health problems
 - Injury
 - Medical negligence ?error or natural history
 - Industrial causes of cancer or disease
- First health care contact may determine patient belief

Injury vs disease

- Injury?
 - Fell over and hurt my back
 - Fell over and I later developed back pain
 - Fell over last year, last month and this week and gradually developed back pain

**Contract
law**

Insurance ← ACC

Illness/Disease

Injury/Harm

Cause

Cause

Fault & liability

Compensation

**Tort
law**

ACC & Woodhouse report

“**Society [should] accept responsibility** for those willing to work but prevented from doing so by physical incapacity

...**we all share in sustaining** those who become the random but statistically necessary victims”

Limiting liability

1. *Not everyone can be compensated!*
2. "...rules limiting liability seem at first sight, both to the non-legal and to the conventional legal eye, to have nothing whatever to do with causation."
 - Hart & Honoré
3. Litigation hinders rehabilitation

Meaning of cause

- **Common sense**
 - Saying the same thing in 2 languages:
- **Medical**
- **Legal**

Common sense

“I consider, however, that what or who has caused a certain event to occur is essentially **a practical question of fact which can best be answered by ordinary common sense** rather than by abstract metaphysical theory.”

“Common sense”

- Deductive vs inductive reasoning
- Legal meaning of common sense
- Evidence-based meaning

Deductive & inductive reasoning

X always has y then this also is x

or

If a has x,y,z then this is also probably “a”

Medicine is uncertain!!

“Medical experts ordinarily determine causation in terms of certainties whereas a lesser standard is demanded by the law.”

- *Snell v Farrell* 1990] 2 SCR 311, 313 Sopinka J

Back pain 101

- Back pain is always caused by injury
- This person has back pain
- Therefore this person's back pain is an injury

Back pain (evidence-based)

- Back pain caused by “a” is characterised by x,y,z
- This back pain has x,y,z
- Therefore this back pain is probably caused by “a”
 - It could also be caused by b,c,d...

General and specific cause

- **General – does injury ever cause back pain**
 - population based answer
- **Specific – did injury cause back pain in this person**
 - does the population include this person

Legal causation (ACC)

- Two stages:
 - “But for” test
 - Scope of liability and proximity
- Actual injury not just risk of injury
- Material contribution
- Balance of probabilities

“But for” test (?=general cause)

- Back pain would not have happened but for an injury
 - =deductive reasoning
 - Is this a necessary condition for something to have occurred? (Lord Hoffman)
- Equate with population based cause

Proximity (and scope)

- Injury proximate to event
- Event must have made more than minor contribution (= material)
- Scope = generalisability test (did the event cause injury in this person)

Balance of probabilities

- An old concept
 - circa 1571
- Not a statistical test (eg relative risk)
- = “belief probability”

“It is the function of the trier of fact, not the medical witnesses, to make a legal determination of the question of causation”

- *Snell v Farrell* 1990] 2 SCR 311, 313 Sopinka J

The importance of causation

The example of British Coal

- 1967 survey of 22 men showed 4 with VWF (Milne survey)
- British Coal negligent for not performing a more detailed survey
 - British Coal might have been able to advise miners about vibrating tools
 - “what would have been revealed by a survey which should have been but never was organised by the defendants”
 - Armstrong & Ors v British Coal Corporation [1996] EWCA Civ 1049
- 2nd largest group action ever
- Where is the evidence for VWF?

Evidence

- “...if British coal and arranged a survey, they would have found a significant level of injury and vibration exposure.”
- “Prof Walsh accepted that he had no figures available to him to demonstrate that there was a statistically significant excess...”
- “...most of the claims...emerged as a result of legal or insurance claims.”
- “...Milne survey...reinforced the evidence of Prof Welsh...that the incidence of VWF in the industry was significant.”

Lawyers compensation from British Coal

- 2006 - compensation to 427,000 miners with respiratory disease and 142,000 with VWF
- >50% (225,000) with chronic chest conditions were paid <£2,000 and 13,000 <£200
- >15,000 claimants died before they received any money
- 2005, when the scheme was running at its peak, one lawyer earned £45,892/day

Someone always pays

“Moorhouse felt that his company was being unfairly penalised because it employs many former miners, a group with a higher incidence of personal injury claims.”

- *Times Newspaper, UK*

Who pays?

- “[t]he truth is that virtually all compensation is paid directly out of public or insurance funds and that through these channels the burden of compensation is spread across the whole community through an intricate series of economic links”

- *Dimond v. Lovell* [2002] 1 A.C. 384, 399 Lord Hoffmann

VWF in chainsaw workers

Sutinen P, Toppila E, Starck J, et al. Hand-arm vibration syndrome with use of anti-vibration chain saws: 19-year follow-up study of forestry workers. *International Archives of Occupational & Environmental Health* 2006;79:665-71

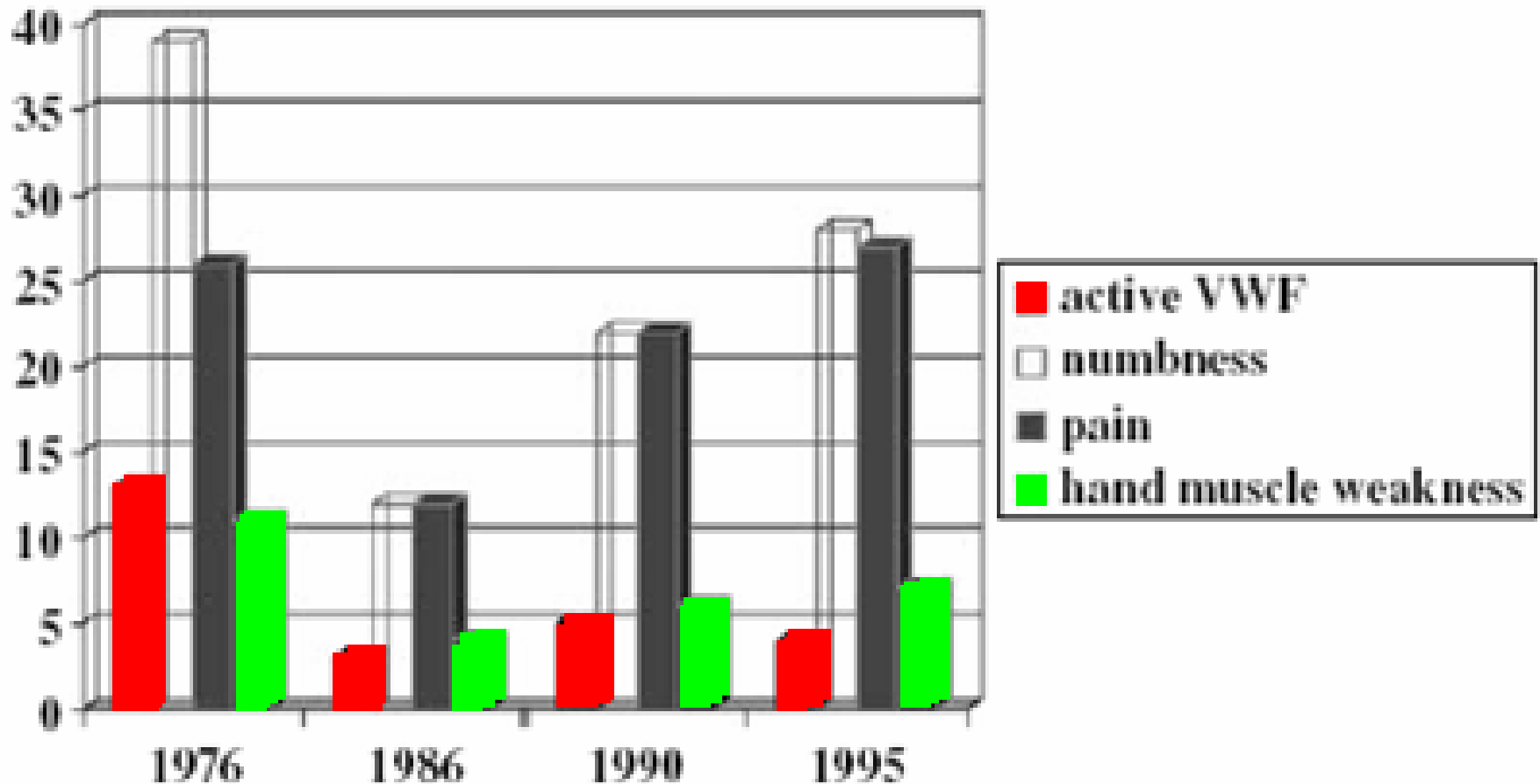


Table 4 Factors predicting vibration white finger (VWF): logistic regression model

	<i>P</i> value	OR	Age-adjusted OR
Univariate analysis of VWF in the cohort			
Age			1.05 (0.92–1.19)
Vibration energy	0.001	1.02 (1.01–1.03)	1.02 (1.01–1.03)
Smoking	0.052	3.64 (0.99–13.36)	2.72 (0.70–10.57)
Multivariate analysis of VWF in the cohort			
Vibration energy	0.001		1.03 (1.01–1.05)
Smoking	0.043		7.36 (1.07–50.76)

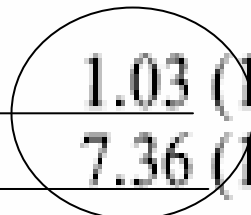
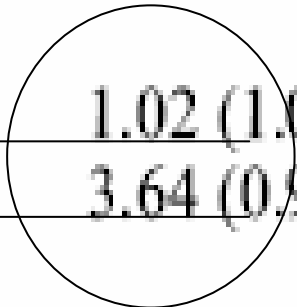


Table 5 Factors predicting numbness: logistic regression model

	<i>P</i> value	Age-adjusted OR	95% CI
Univariate analysis of numbness in upper extremities in the cohort			
Lifelong vibration energy	0.244	1.00	0.99–1.01
Pain in upper extremities	0.001	<u>11.23</u>	2.81–44.77
Regional neck pain	0.006	<u>5.72</u>	1.67–19.61
Multivariate analysis of numbness in the cohort			
Lifelong vibration energy	0.364	0.99	0.98–1.00
Pain in upper extremities	0.003	<u>12.43</u>	2.12–63.80
Regional neck pain	0.025	<u>5.97</u>	1.25–28.39

A case of a smoking gun?

- The court decided:
 - 4-5% of people in general population develop VWF
 - At 8 years of vibration – 10% of employees develop finger blanching

But wait...

- “...the state of modern science there is no way of telling whether in an individual case...a lung cancer was caused by cigarette smoking”
- “...when there are risk factors other than smoking which have been identified as being associated with lung cancer
- “...about 10% of cases of lung cancer are found in non-smokers”
 - *McTear v Imperial Tobacco Ltd* [2005] CSOH 69

Conclusion

- Medical causation = legal causation
- Rational approach to causation
 - Is evidence-based
 - Is justice
 - Smoking does not cause lung cancer
 - VWF is caused by vibrating tools
 - Controls insurance costs
 - Removes obstacles to rehabilitation