

Medical aspects of Whiplash and Minimal Impact Injuries

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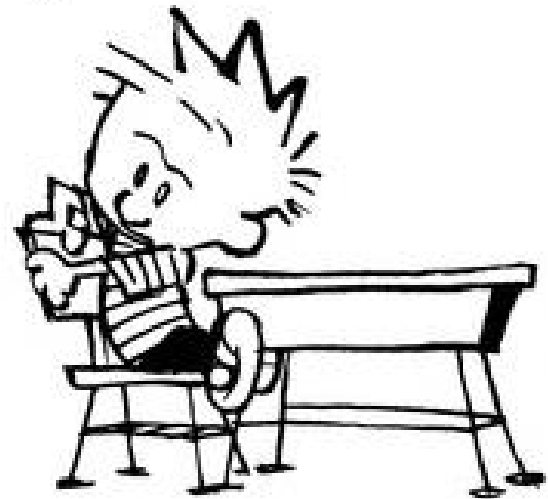
...SIGHHHHHH...



CALVIN, PAY ATTENTION!



THERE'S NO HEAD REST ON THIS CHAIR! I SHOULD SUE FOR WHIPLASH!



Medicine and ΔV

Get ΔV from engineer

Various interpretations in literature

- Articles showing injury at low and high levels

Some claim any impact must cause injury

The mechanism of whiplash confirms a minimum force is required

Symptoms are common without impact

ΔV in literature

LOW

- Davis, C.G. 1998. Rear-end impacts: vehicle and occupant response. J. Manipulative Physiol. Ther. 21, 629-639.

Review article suggesting threshold level was

($\Delta V = 4\text{km/hr}$)

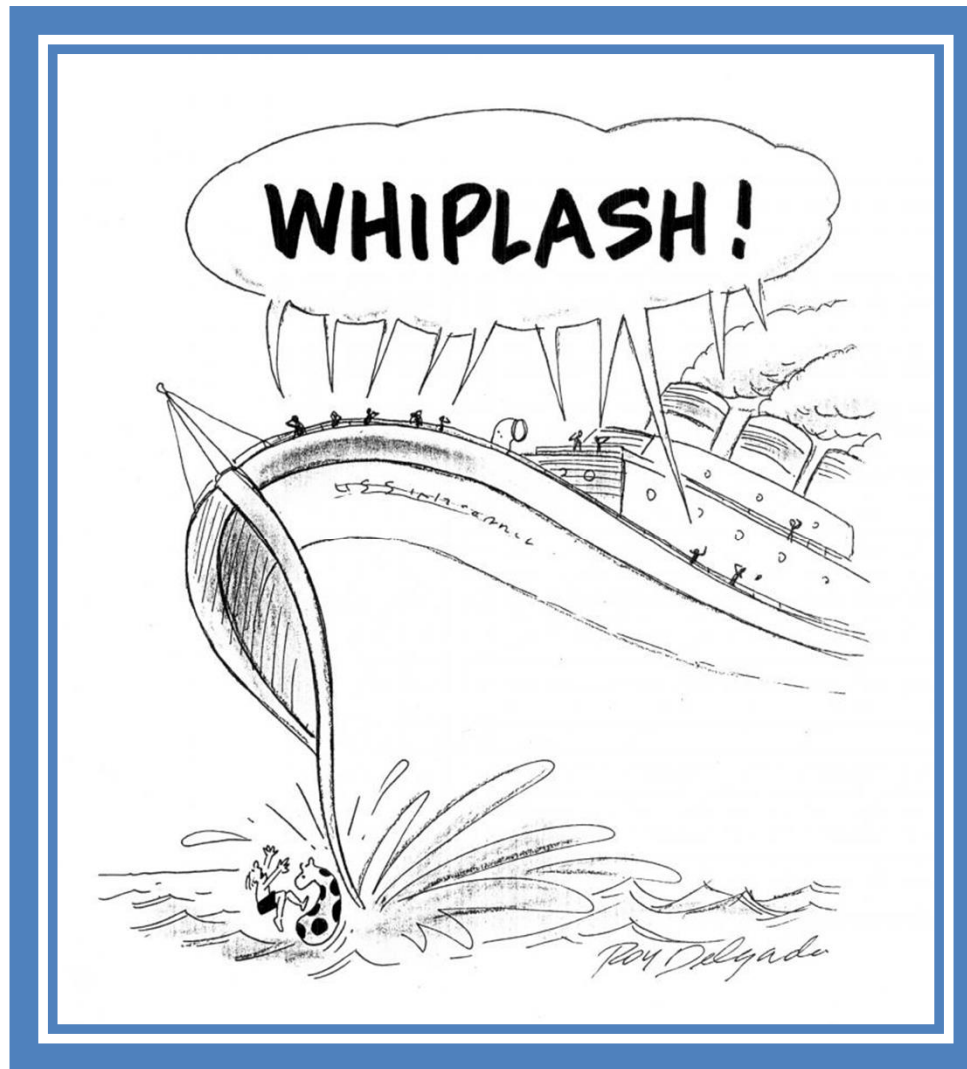
HIGHER

- McConnell et al 1993 Analysis of human test subject kinematic responses to low velocity rear end impacts. Society of Automotive Engineers Technical Paper 930889 p.21-30

Impacts from 2 to 20 km/hr with no symptoms in male volunteers

($\Delta V = 10\text{km/hr}$)

Any impact can cause injury!



Force is required to induce whiplash

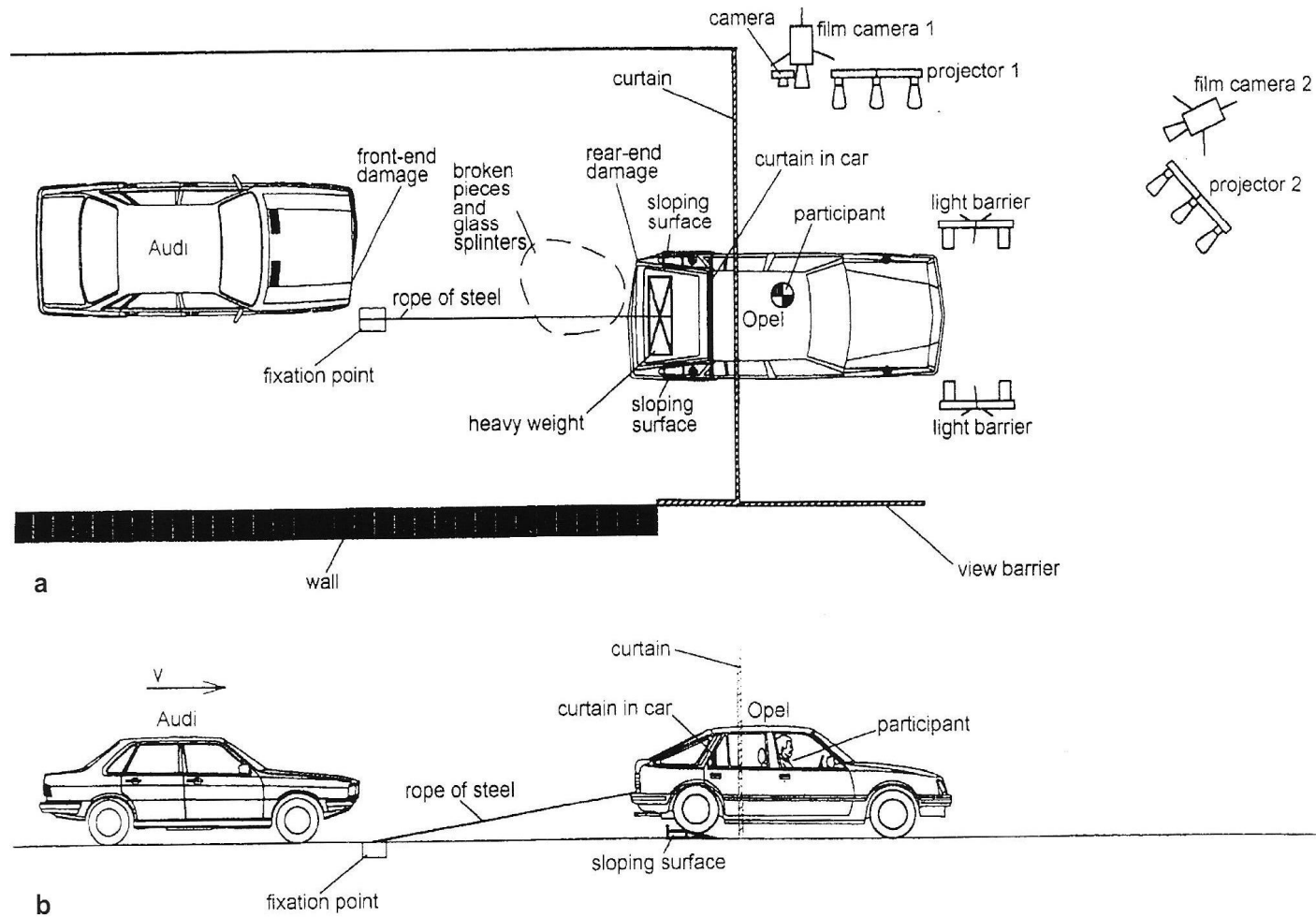




PLACEBO ACCIDENT

Castro, W.H. et al. 2001 No stress – no whiplash? Prevalence of whiplash symptoms following exposure to a placebo rear end collision. International J. of Legal Med.114, 316-322. (0 km/hr)

Placebo accident



51 subjects

9 had symptoms immediately after impact

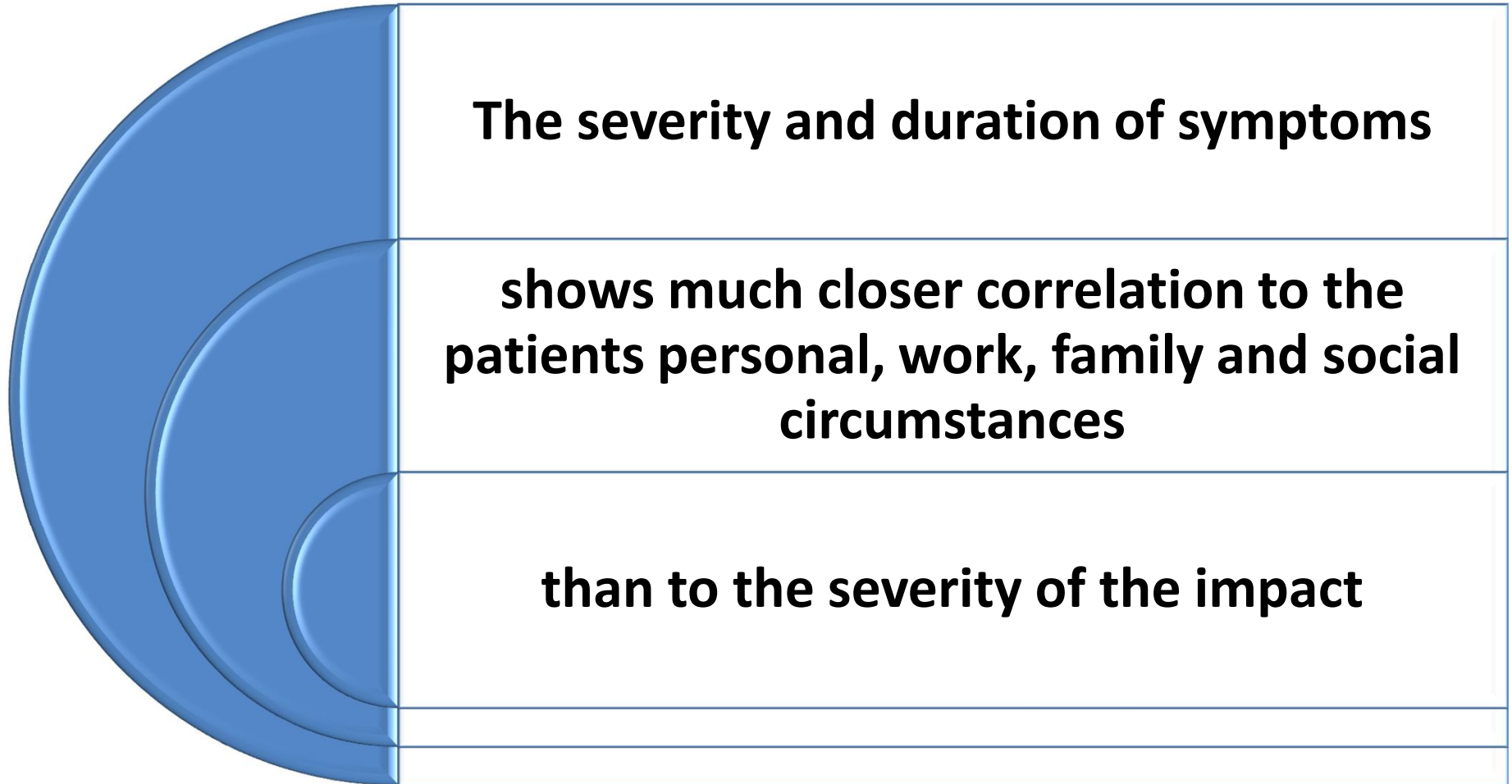
10 had symptoms at 3 days (20%)

3 had symptoms at 4 weeks

FRIBURGER PERSONALITY INVENTORY

- High psychosomatic scores
- High emotional instability scores
- 90% predictive

My opinion - whiplash



What causes the symptoms of whiplash?

5 main factors in symptom profile

Conscious and Unconscious factors

Some factors induce “common whiplash”
others “chronic whiplash”

1. Pre Morbid Personality

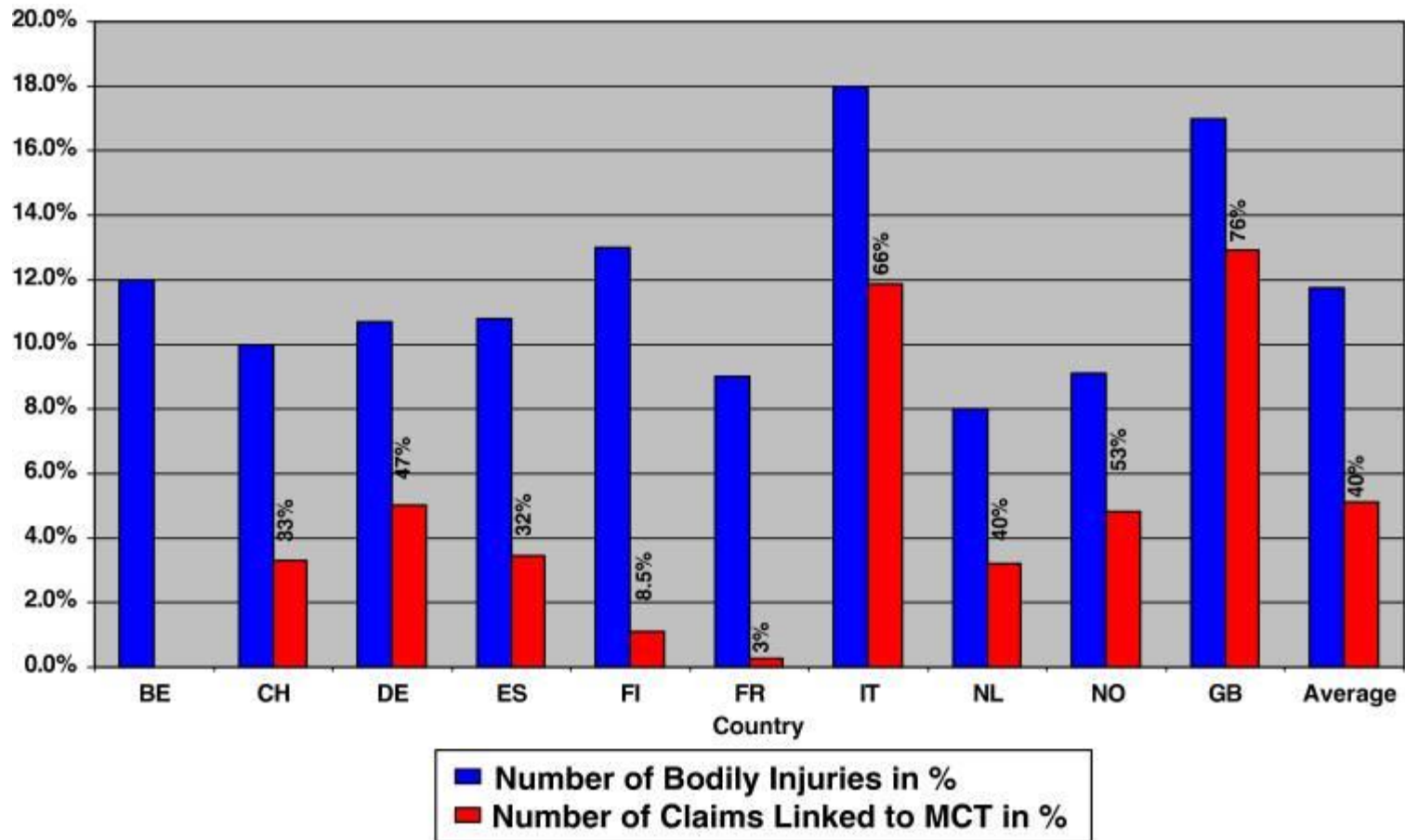
1. Psychosomatic disorders - Fibromyalgia / Irritable Bowel Syndrome / Repetitive strain injury (no objective findings)

2. Health concerns - Frequent GP attendance

3. Emotional stability -Anxiety > Depression, Poor ability to cope and tendency to catastrophising

4. Life satisfaction – job, family, personal life etc

2. Cultural - Minor Cervical Trauma



2. Cultural Expectations

- “ French vs German experience 3% vs 47% of BI are MCT
- “ Swiss French vs Swiss German
- “ Canada French Quebec vs British Columbia 50/100,000 vs 850/100,000

3. Secondary Gain



Balancing possible gain against possible loss

- Personality difficulty + Troubled life situation = Unacceptable disability
- Unacceptable disability + Collision (no fault) = Acceptable disability (adopting sick role)

4. Tertiary Gain – Medical/Legal

serious problems.

Get help from Seattle leading accident injury specialist before your case is closed!



Dear Neighbor,

If you've been in an auto accident, have been diagnosed with whiplash, or THINK you may have whiplash or other spinal injuries, **you can't afford NOT to see a qualified injury recovery specialist right away!**

My name is Dr. Dawn Hunter and I'm a local injury specialist. Take my advice: If you've been in an accident-however small-even if you didn't have to go to the hospital (or you went and everything checked out "OK"), you might have undetected structural injuries such as whiplash, spinal subluxations (misalignments), or bone, soft tissue, or nerve damage that could cause you serious problems and expense weeks, months, even years down the road- *whether or not you have any symptoms now!*



**GET MAXIMUM COMPENSATION
FOR YOUR WHIPLASH CLAIM
NO WIN - NO FEE**



5. Elaboration (Malingering)

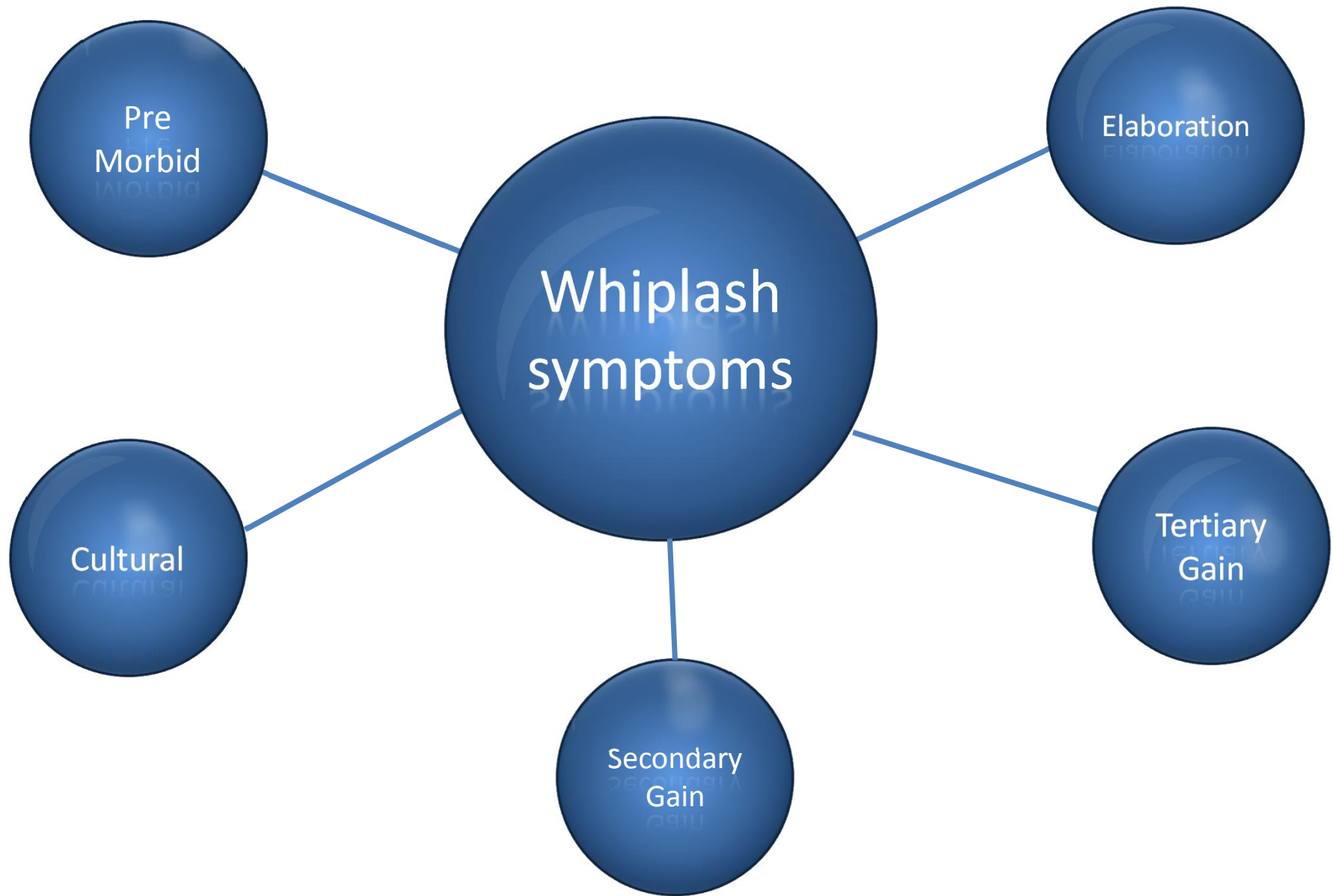


- “ Attributing pre-existing genuine symptoms to an accident
- “ Attributing symptoms arising from another source to an accident
- “ Exaggerating genuine minor symptoms
- “ Receiving un-necessary investigations or treatment to maximise a claim
- “ Avoiding treatment to maximise symptoms

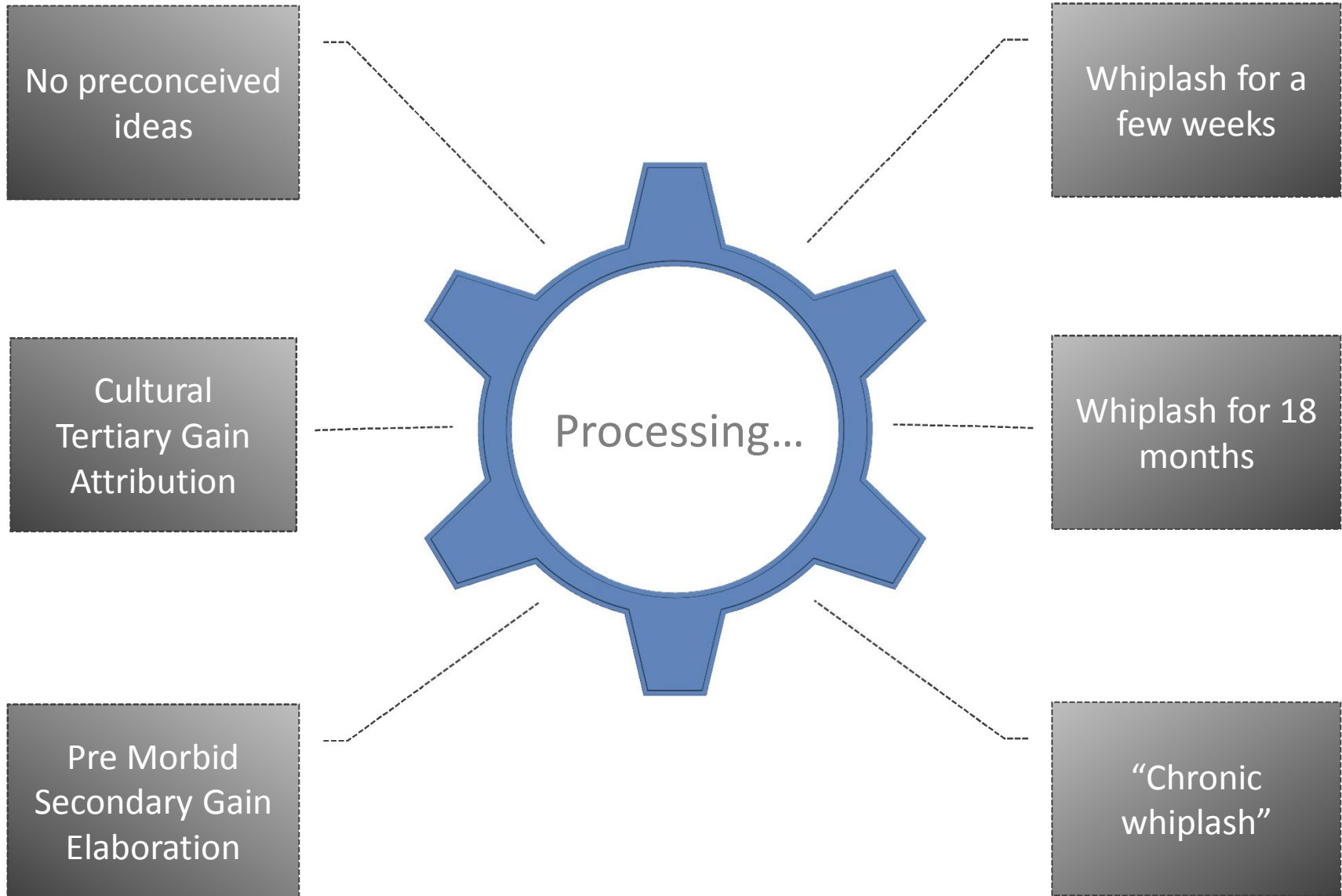
Attribution

Neck Pain	Percentage of population
1 day per month	20
1 – 7 days/month	8
> 7 days/month	8

Whiplash Symptom Profile



Level of Whiplash





MEDICAL ROLE?



Doctors role in assessment

1. **Did an injury occur?** If not whatever complained of and whatever duration are not accident related

2. **Are the symptoms due to the injury?** Should manifest in 12-24 hours at latest

3. **What is the severity of the injury?** Symptoms should be easing at 6 weeks

4. **Are there elements to suggest protracted symptoms?** “Thin psyche” Secondary gain etc

Clinical Examination

No objective findings

Anyone who feels they can detect spasm, scar tissue or facet inflammation is delusional

Tenderness is as reported by the patient

Range of movement is measurable but can be under patient control

Diagnostic Imaging



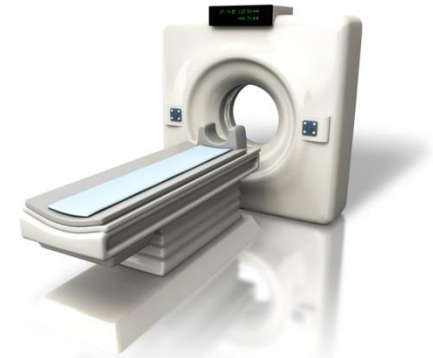
X-rays

- Loss of lordosis – normal
- Reversal of lordosis – normal

Bone scan

- Very sensitive for bone and ligament injury
– negative for all chronic whiplash

MRI scans and whiplash



MRI scans

- 100 patients scanned within 3 weeks showed no acute injury
- Disc degeneration of no relevance to symptoms or outcome
- 20% of people in their 20's have abnormalities with no symptoms
- 23% of 45-80 year olds have disc protrusion causing cord compression with no symptoms
- Lateral disc prolapses are often not on the side of symptoms

How to reach a conclusion

PROBLEM

- “ Seems obvious - hit from behind = whiplash
- BUT
- “ People are complex
- “ Personality, Cultural and other Modifying Influences
- “ No objective clinical findings
- “ No radiological findings

BEST SOLUTION

- “ Need information Including Delta V
- “ Need a good history
- “ Must know expected symptoms, their onset and duration of symptoms over time to determine credibility
- “ Diagnosis is made by experience

Diagnosis-importance of history

- “ 39 year old female involved in a relatively minor rear end impact
- “ I saw at 3 months complaining of intermittent neck pain
- “ Had a full range of neck movement with some hesitancy, normal shoulder movement
- “ Had a ten month old child who had a stroke she was stressed by this
- “ At six months complained of pins and needles in her right hand, GP sent her for MRI
- “ MRI shows disc degeneration and bulging to left at C5/C6
- “ At 12 months developed pins and needles in her left hand

- “ Referred to orthopaedic surgeon who injected her neck on 2 occasions (private) – no benefit – “horrific”
- “ Referred to pain clinic and put on extensive medication
- “ Referred to neurosurgeon who has recommended disc excision and fusion
- “ Can’t afford (€16,000), referred to another surgeon for opinion on a public list
- “ I reviewed her at 2 years neck very stiff 50% of normal movement and shoulders now 50-60% of normal
- “ Has never seen a psychologist

Judge asks if no real impact – Why still complaining?

- “ Unhappy with life, cant cope, can now blame accident, happy with new situation
- “ Getting attention, being listened to, enjoying sympathy
- “ Aunt Maureen’s pain lasted years , she still has pain, she says she will never get better
- “ Doctor says it could last years, needs injections
- “ Lawyer says to record every little detail, keep complaining
- “ No job needs the money
- “ Attributing normal aches and pains to accident
- “ Feels deserve/is owed compensation, Vengeance
- “ Lying

How to explain complaints in minimal impact



Take home points

There are no injuries below a certain ΔV

As much information as possible should be obtained

- Symptoms can occur with no impact
- Symptoms based on psychological and cultural factors not severity of impact
- There are no clinical or diagnostic findings

Early examination/reports essential



“I think what we’ll do is rub some insurance money on it and see what happens.”



Medical Aspects of Whiplash

And minimal Impact



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