



Stuyvenberggasthuis, Antwerpen
Hôpital Stuyvenberg, Anvers
Gasthuis
Faculté Principale

WHIPLASH

Risk Factors - Prognostic Factors - Therapy

D. Verhulst, W. Jak
Geneeskundige Dagen Antwerpen
11 september 2015

Definition

- 1995 Quebec Task Force on Whiplash Associated Disorders (WAD):
 - ▣ “Whiplash is an **acceleration-deceleration** mechanism of energy transfer to the neck. It may result from rear-end or side-impact motor vehicle collisions, but can also occur during diving or other mishaps. The impact may result in **bony or soft-tissue injuries** (whiplash injury), which in turn may lead to a **variety of clinical manifestations** called Whiplash-Associated-Disorders”
 - ▣ Spitzer Spine 1995



Classification WAD

0

- No complaints
- No physical signs

1

- Neck complaints (pain, stiffness, tenderness)
- No physical signs

2

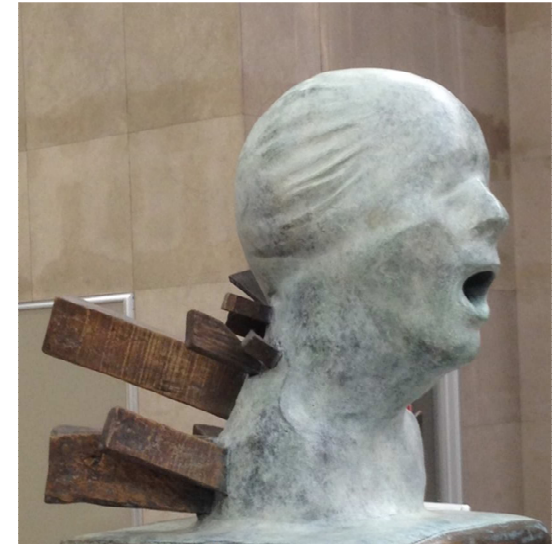
- Neck complaints
- Musculoskeletal signs

3

- Neck complaints
- Neurological signs

4

- Neck complaints
- Fracture or dislocation



Statistics of WAD

- Cost: 3,64 Billion Pounds per year in UK
- 1500 daily claims !!
- Fourth most important cause of incapacity in USA
- Most cases after rear end collisions ≤ 20 km/h
- Over 66% make full recovery (debated)
- Outcome predictable in 70% after 3 months.

Bannister G., et.al.; J Bone Joint Surg Br. 2009 Jul;91(7):845-50

Prognostic factors of WAD



Pain 138 (2008) 617–629

PAIN

www.elsevier.com/locate/pain

Course and prognostic factors of whiplash: A systematic review and meta-analysis[☆]

Steven J. Kamper^{a,*}, Trudy J. Rebbeck^b, Christopher G. Maher^a,
James H. McAuley^a, Michele Sterling^c

^a *The George Institute, University of Sydney, NSW, Australia*

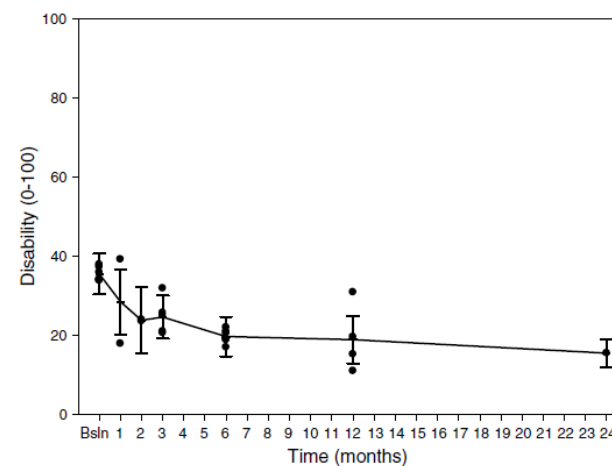
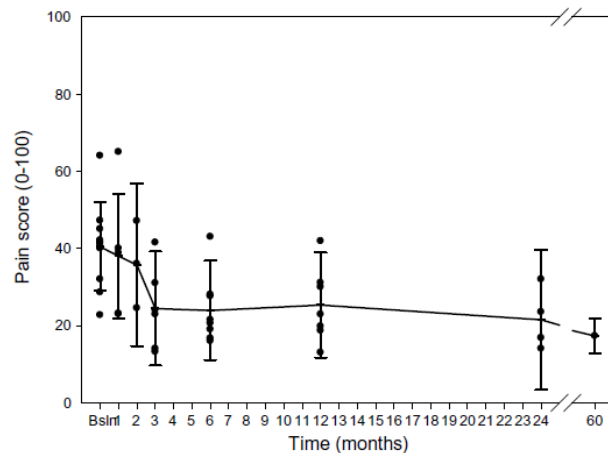
^b *Back Pain Research Group, University of Sydney, NSW, Australia*

^c *Centre for National Research on Disability and Rehabilitation Medicine (CONROD), University of Queensland, Australia*

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Course and prognostic factors

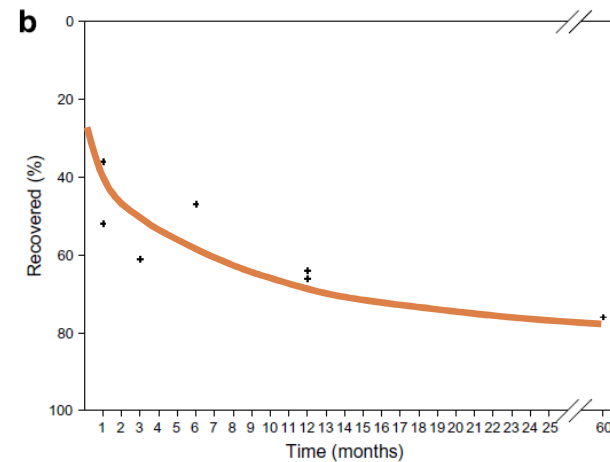
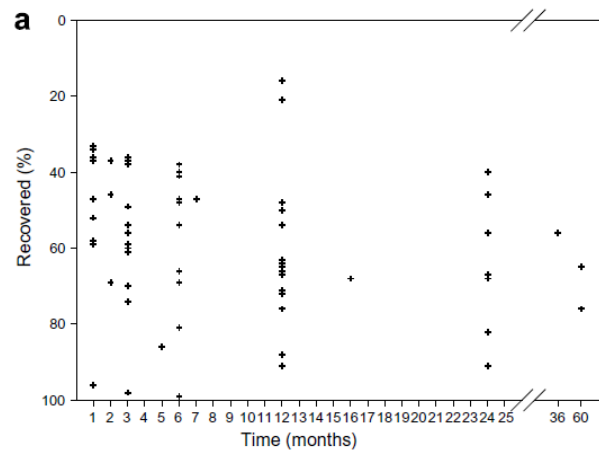
- Course of pain and disability
 - ▣ Rapid improvement first 3 months
 - ▣ Little to no improvement after 3 months



Course and prognostic factors

□ Recovery rate

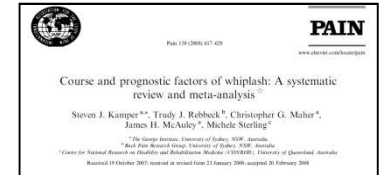
- Highly variable between cohorts (a)
- Less than 1/4 use validated instruments



b:

- ✓ < 3 weeks inception
- ✓ Validated outcome measure
- ✓ > 80% follow-up

Course and prognostic factors



□ Prognostic factors

▣ Indicator of poor prognosis

- High initial pain and disability
- Generalised psychological distress (i.e. anxiety, depression, ...)

▣ Not related to poor outcome

- Female gender
- Older age
- Crash-related factors (direction, speed of impact)

Risk Factors for Persistent Problems

2009: Journal of Orthopaedic & Sports Physical Therapy

2013: Update on this systematic review

[LITERATURE REVIEW]

DAVID M. WALTON, PT, MSc¹ • JASON PRETTY, BA²
JOY C. MACDERMID, PT, PhD³ • ROBERT W. TEASELL, MD, FRCPC⁴

Risk Factors for Persistent Problems Following Whiplash Injury: Results of a Systematic Review and Meta-analysis

Risk Factors for Persistent Problems

- Initial neck pain $> 55/100$
 - ▣ Nearly 6-fold increase for ongoing pain and disability
- No postsecondary education
- Female gender
- Presence of headache
- Previous history of neck pain
- Catastrophizing
- WAD grade 2 or 3
- Nonuse of seat belt
- Low Back Pain at inception



Risk Factors for Persistent Problems

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- ❑ Low Back Pain at inception

= Most robust variables

Walton et.al. J Orthop Sports Phys Ther 2013 Feb;43; 31-43



Not relevant for prognosis!!

- ❑ Older age
- ❑ Severity of collision !!
- ❑ No head restraint
- ❑ Direction of impact
- ❑ Unprepared for the collision
- ❑ Depressive symptoms

Effect of compensation claims



The NEW ENGLAND
JOURNAL of MEDICINE

Special Article

EFFECT OF ELIMINATING COMPENSATION FOR PAIN AND SUFFERING ON THE OUTCOME OF INSURANCE CLAIMS FOR WHIPLASH INJURY

J. DAVID CASSIDY, D.C., PH.D., LINDA J. CARROLL, PH.D., PIERRE CÔTÉ, D.C., MARK LEMSTRA, M.Sc.,
ANITA BERGLUND, B.Sc., AND ÅKE NYGREN, M.D., PH.D.

Effect of compensation claims

- Cassidy et al – NEJM 2000
- Saskatchewan, Canada 1995
Compensation system for traffic injuries
changed a tort-system to a no-fault system.
- Conclusion: The elimination of compensation
for pain and suffering is associated with a
**decreased incidence and improved
prognosis** of Whiplash injury



Danish Phd Thesis 2012



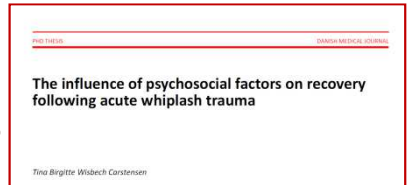
PHD THESIS

DANISH MEDICAL JOURNAL

The influence of psychosocial factors on recovery following acute whiplash trauma

Tina Birgitte Wisbech Carstensen

Influence of psychosocial factors



- 672 pt, 12y FU
 - ▣ Recruited from emergency departments and GP's
- Conclusions
 - ▣ Pre-collision unspecified pain condition, female gender, low educational level, unemployment and blue collar work were associated with future self-reported affected work capacity
 - ▣ Same conditions not associated with persistent pain!
 - ▣ Being unemployed, sick-listed, and receiving social assistance pre-accident were associated with future negative change in provisional situation

Influence of psychosocial factors

The influence of psychosocial factors on recovery following acute whiplash trauma

Tina Birgitte Wisbech Carstensen

□ Conclusions (bis)

- Pre-collision pain condition, sick-listing, female gender and low educational level predict future work capacity
- Certain coping strategies (Catastrophizing and reinterpreting pain sensations) badly influence recovery after whiplash trauma
- No interaction between coping strategy and gender

Treatment of Whiplash

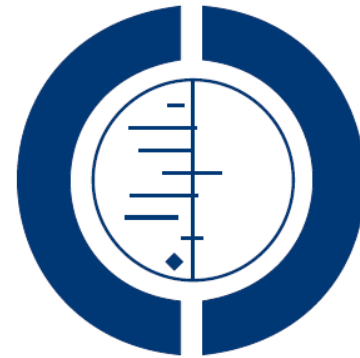
- ❑ Much less published
- ❑ Lot of “pseudo-science”
- ❑ Little or no “Scientific” studies
- ❑ Difficult to conclude anything



Conservative treatment for whiplash

Conservative treatments for whiplash (Review)

Verhagen AP, Scholten-Peeters GGGM, van Wijngaarden S, de Bie R, Bierma-Zeinstra SMA

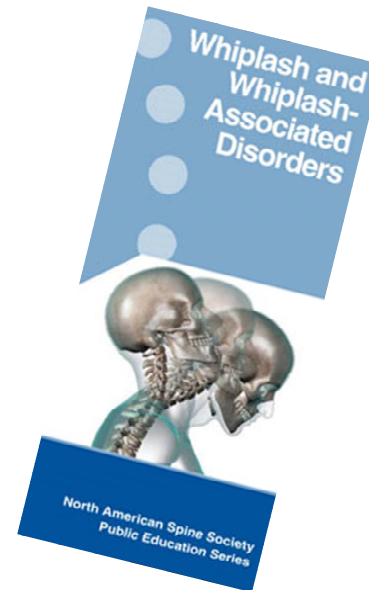


THE COCHRANE
COLLABORATION®

Conservative treatment for whiplash



- No difference between no intervention and passive intervention
 - ▣ Pulsed Electromagnetic therapy
 - ▣ Psycho-educational video
 - ▣ Educational pamphlet
 - ▣ Electrotherapy
 - ▣ Iontophoresis
 - ▣ Ultra-reiz current



Conservative treatment for whiplash



- “Act as usual” vs Time off from work & soft collar
 - ▣ No difference
- **Physical therapy** vs Rest & collar
 - ▣ Lower VAS scores at 6 weeks and 6 months
 - ▣ No difference in return to work



Conservative treatment for whiplash

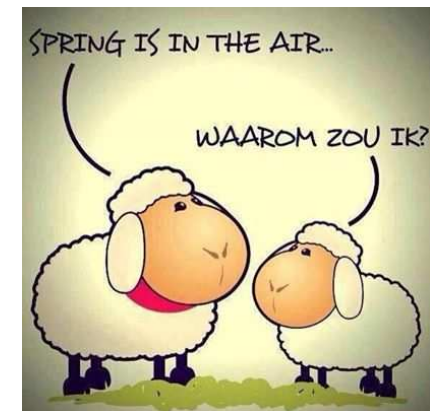


- Acute whiplash
 - ▣ **Physiotherapy, Advise & exercises at home** vs Physiotherapy alone
 - Significant better recovery after 2 years
- Subacute whiplash (4-13 weeks):
 - ▣ **Advise & education GP** vs Exercise and advise Physio
 - Significant improvement in work activities at 1 year
- Chronic whiplash (>3 months)
 - ▣ Physiotherapy +/- cognitive behavioural component
 - No difference

Authors' conclusion



- Given the current evidence, **no clear conclusions** can be drawn about the most effective therapy for patients with acute, subacute or chronic whiplash-associated disorders, Grades 1 or 2. There is a trend that **active interventions are probably more effective** than passive interventions, but no clear conclusion can be drawn.



Some Guidelines

- Effective treatment of early pain and symptoms beneficial
- “act as usual” and mobilisation seem better than time off work and soft collar
- Active physiotherapy seems beneficial in acute WAD I and II (not proven, but trends seen)
- Clear evidence of improved results after baseline education of primary care providers
- Medico-legal aspects clearly demonstrated as being detrimental for outcome!

Medicolegal Aspect

- ❑ “no pain, no gain” is detrimental for outcome
- ❑ “burden of proof” for the patient induces complaints
- ❑ The shorter the procedure the better
- ❑ Recompensation is insignificant as opposed to the traumatic experience of medicolegal procedures
- ❑ Role of lawyers is dubious in most cases

Information for the patient

- 66% or more make full recovery
- Lesion is in itself benign
- Try to remain active
- Try to keep moving your head
- Deal with the paperwork as quickly as possible
- Don't be afraid of the initial symptoms

Bedankt voor de aandacht



Dominique Verhulst MD
Orthopaedic Surgeon