

Musculoskeletal Disorders and Commercial Motor Vehicle Driver Safety

Findings of Evidence Report

Presented by
Stephen Tregear, DPhil



Federal Motor Carrier Safety Administration

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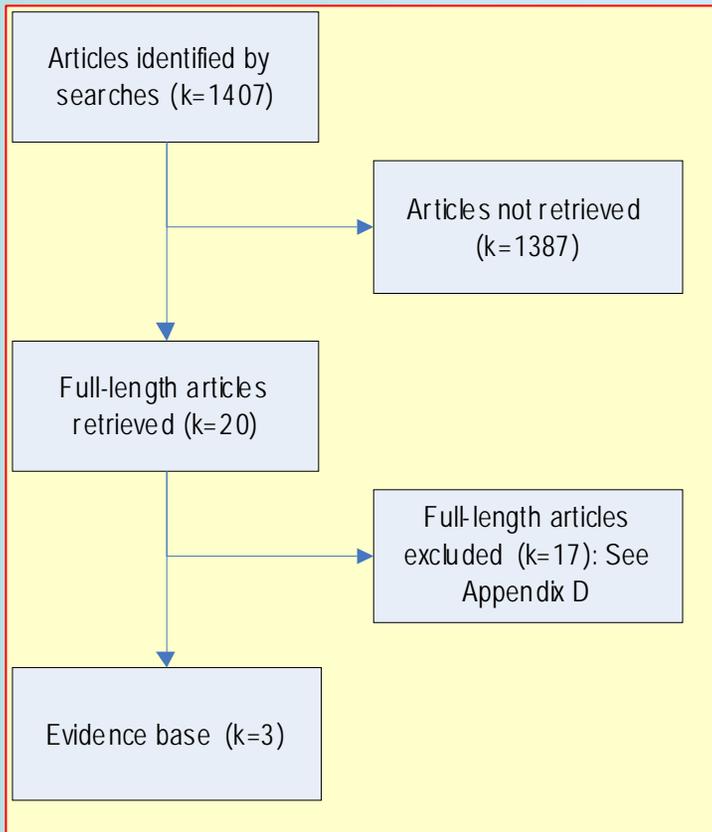
Issues Examined

- Impact of amputation and driver safety
- Impact of arthritides and driver safety
- Impact of reduced ROM at level of neck and spine on driver safety
- Impact of vehicle modifications/prosthetics on driver safety

Searches

Name of database	Date limits	Platform/provider
CINAHL (Cumulative Index to Nursing and Allied Health Literature)	Through August 14 2007	OVID
Cochrane Library	Through 2007 Issue 3	www.thecochranelibrary.com
Embase (Excerpta Medica)	Through August 14 2007	OVID
Medline	Through August 14 2007	OVID
PubMed (Pre Medline)	Searched July 11 2007	www.pubmed.gov
TRIS Online (Transportation Research Information Service Database)	Through July 24 2007	http://trisonline.bts.gov/search.cfm
PsycINFO	Through August 14 2007	OVID
National Guideline Clearinghouse™ (NGC™)	Through August 2007	www.ngc.gov
Health Technology Assessment Database (HTA)	Through 2007 Issue 3	www.thecochranelibrary.com

Amputation and Driver Safety



- 3 studies included
- No studies specific to CMV drivers
- 2 case-control studies looked at crash risk among amputees
- 1 study looked examined different strategies for pedal use

Amputation and Driver Safety – Crash Studies

Reference	Year	Result	Interpretation
Gresset and Meyer	1994	OR = 0.84 (95% CI: 0.44 to 1.67)	No evidence of an increase in crash risk among amputees
Ysander	1969	OR = 1.36 (95% CI: 0.57 to 3.10)	No evidence of an increase in crash risk among amputees

- Findings inconclusive



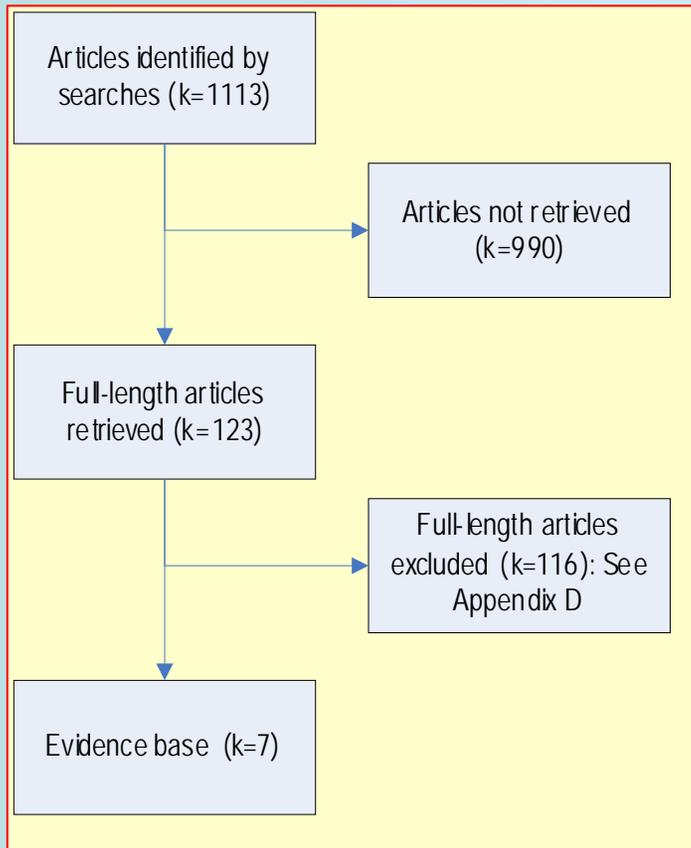
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Arthritides and CMV Driver Safety

- The arthritides are a category of musculoskeletal disorders that encompasses over 100 different conditions
- Natural history of the arthritides differ by condition
- Symptoms of arthritides may include pain, loss of joint motion, fatigue
- The disorders can be associated with severe disability and pain that may interfere with the ability to perform several aspects of the driving task

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Arthritides and Driver Safety



- No CMV driver studies
- 7 studies identified that examined impact of the common arthritides on driver safety
- 3 studies looked at crash data
- 4 studies looked at other surrogates for driver safety

Arthritides on Driver Safety

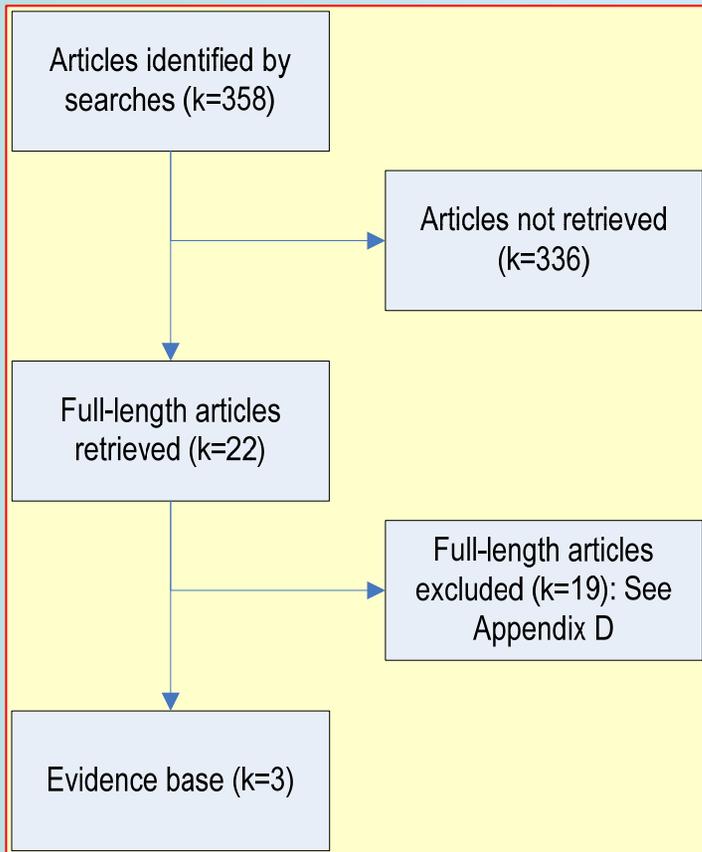
Crash Data

Reference	Year	Findings	Conclusion
Koepsell et al.	1994	<u>Osteoarthritis</u> OR=1.1 (95% CI: 0.8 to 6.0) <u>Rheumatoid Arthritis</u> OR = 1.6 (95% CI: 0.5 to 5.3)	No evidence that either arthritide is a risk factor for a crash
McGwin et al.	2000	<u>All</u> OR = 1.2 (95% CI: 0.9 to 1.7) <u>Women</u> OR = 1.8 (95% CI: 1.1 to 2.9) <u>Men</u> OR = 0.8 (95% CI: 0.5 to 1.3)	Arthritis a possible risk factor for crash among women but not men
Sims et al.	2000	OR = 1.04 (95% CI: 0.61 to 1.78)	No evidence that either arthritide is a risk factor for a crash

Reduced ROM at Level of Spine/Neck and Driver Safety

- Can individuals with reduced ROM at the level of spine or neck be certified to drive?
 - What is the impact of reduced ROM on driving ability?
 - Is there evidence that individuals with decreased ROM are at an increased risk for a crash?
 - Are there specific measures of ROM that predict increased crash risk?

Reduced ROM at Level of Spine/Neck and Driver Safety



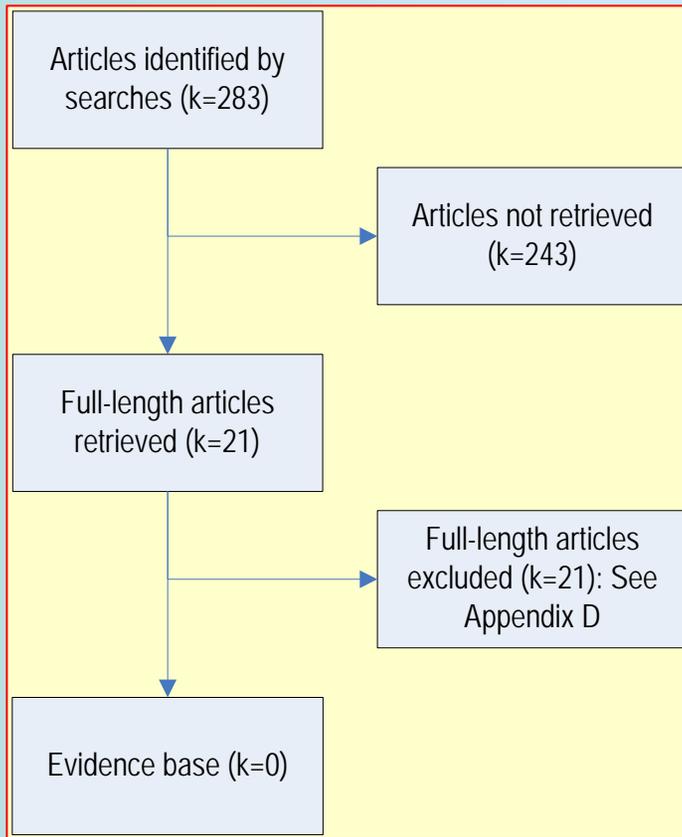
- 3 studies included
- No crash studies
- No CMV driver studies
- All studies looked at impact of ROM on various driving tasks

Reduced ROM at Level of Spine/Neck **and Driver Safety**

- **The presence of a disorder that limits cervical ROM found to have a deleterious impact on driving ability; however, it is unknown whether such restrictions in ROM are associated with an increase in crash risk**
- **It is possible that compensatory behaviors, especially in younger drivers, may act to reduce this risk**

Vehicle Modifications/ Limb Prosthetics and Driver Safety

- 283 Articles identified
- 21 Articles retrieved
- 0 studies included



Vehicle Modifications/ Limb Prosthetics and Driver Safety

- While it is assumed that modifications to vehicles and the use of prostheses does have an impact on driver safety, studies demonstrating this to be the case have not been performed

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Summary



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