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The impetus for conducting a Cochrane Review

Jos Verbeek, Cochrane Occupational Safety and Health Review Group,
the Editorial Team and dozens of Cochrane Review Authors

Don't we know what works?

- Rates of fatal injuries decreased over time

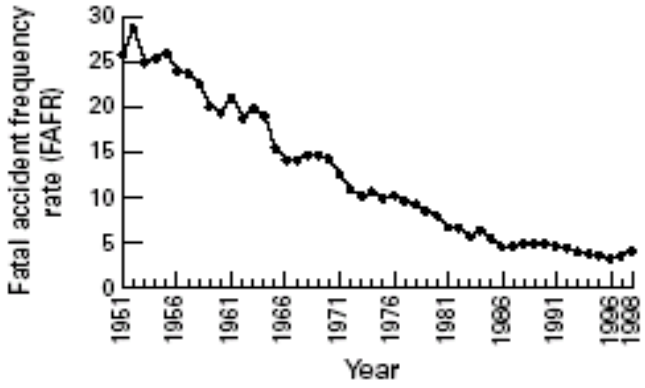
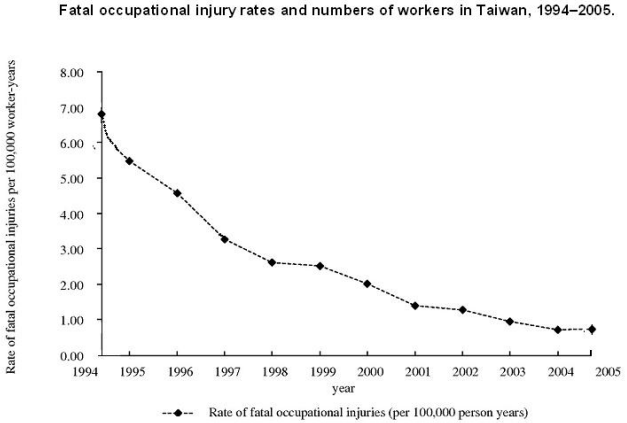


Figure 13 Frequency of fatal accidents over the period 1951–98.

Italy 1951 - 1998
Fabiano OEM 2001



Taiwan 1994 - 2005
Ho OEM 2010

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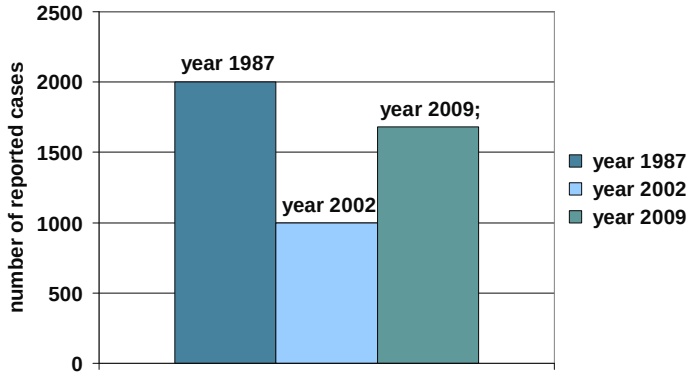
Noise-induced hearing loss

- UK: THOR data show that diagnoses related to work-related noise exposure remain important health problems, despite preventive measures being in place (Money 2010)

- Korea: Though noise exposure level has improved, NIHL is the most common occupational disease.. and NIHL prevalence is thought to be much higher than reported in official publications (Kim 2010)



Finland: Reported cases of noise-induced hearing loss

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What works best in practice?

- How to best help teachers with voice problems?

Therapy?
- Speech therapy?
- Aids, amplifier?

Prevention?
- Education and training?
- Change classroom environment?
- Regulation?

Multifaceted intervention?

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Evidence voice problems interventions

- Search Medline through Pubmed: voice AND occupation

- Evidence
  - Cochrane Systematic Reviews: Ruotsalainen et al 2007/2010:

  Therapy
  - *Voice therapy* is effective compared to no intervention (4 RCTs)
  - For *amplification aids* no studies found

  Prevention
  - For *voice training*, there is *no* evidence of effectiveness in 4 RCTs
  - For *work-directed interventions* no studies found

- Implications for practice
  - Concentrate on therapy for those with symptoms
  - Ask for studies of prevention effectiveness

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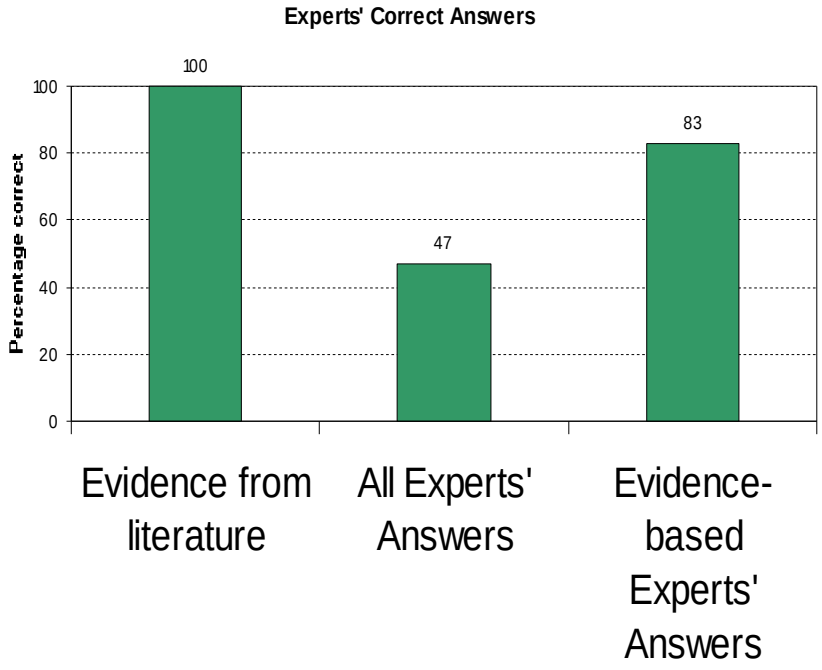
Why not use expert's advice?

- Answers of experts compared to evidence (N=75)
- Not in line with evidence: 53%
- If based on evidence, only 17% wrong

Conclusion:

If you ask experts for advice, ask for evidence!



Schaafsma BMC Health Serv Res. 2005

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What is evidence?

Ev·i·dence

/□ɛv ɪ dəns/

Show Spelled [ev-i-duh ns]

– noun

1. that which tends to prove or disprove something; ground for belief; proof

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Evidence should prove that our current approach..

- ...is beneficial and should be continued

OR

- ...does not help and should be changed

- We have strong beliefs:
  - Prevention is always beneficial...
  - Correct body position prevents back pain...
  - A healthy diet is..

- Strong evidence needed
  - Difficult to change current practice/policy
  - The stronger the beliefs the more difficult to change them

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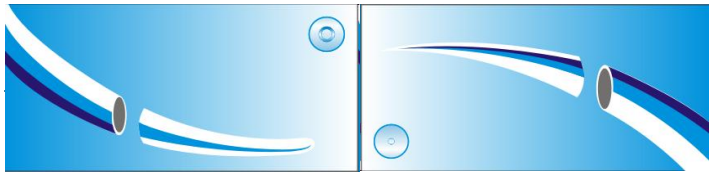
Blunt needles to prevent needle stick injuries in health care

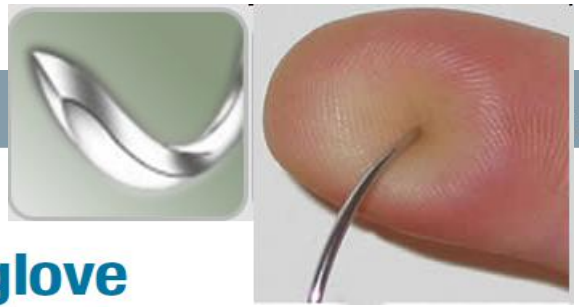
Am J Surg. 1996 Nov;172(5):512-6

Influence of blunt needles on surgical glove perforation and safety for the surgeon.

Mingoli A, Sapienza P, Sgarzini G, Luciani G, De Angelis G, Modini C,
1st Department of Surgery, La Sapienza University, Rome, Italy.



CONCLUSION: The risk of glove perforation is sevenfold greater if sharp needles are used. Blunt needles reduce sharp injuries and improve safety for surgeons.



RESEARCH

OBSTETRICS

The use of blunt needles does not reduce glove perforations during obstetrical laceration repair

Lisa K. Wilson, MD; Scott Sullivan, MD, MSCR; William Goodnight, MD; Eugene Y. Chang, MD; David Soper, MD

2008

OBJECTIVE: The objective of the study was to compare the rate of glove perforation for blunt and sharp needles used during obstetrical laceration repair. A secondary aim was to assess physician satisfaction with blunt needles

ence between groups in patient demographics, clinical variables, severity of laceration, or experience level of the surgeon. There was no difference in the glove perforation rate between blunt and sharp needles (risk ratio, 0.79; 95% confidence interval, 0.2-2.95). There was

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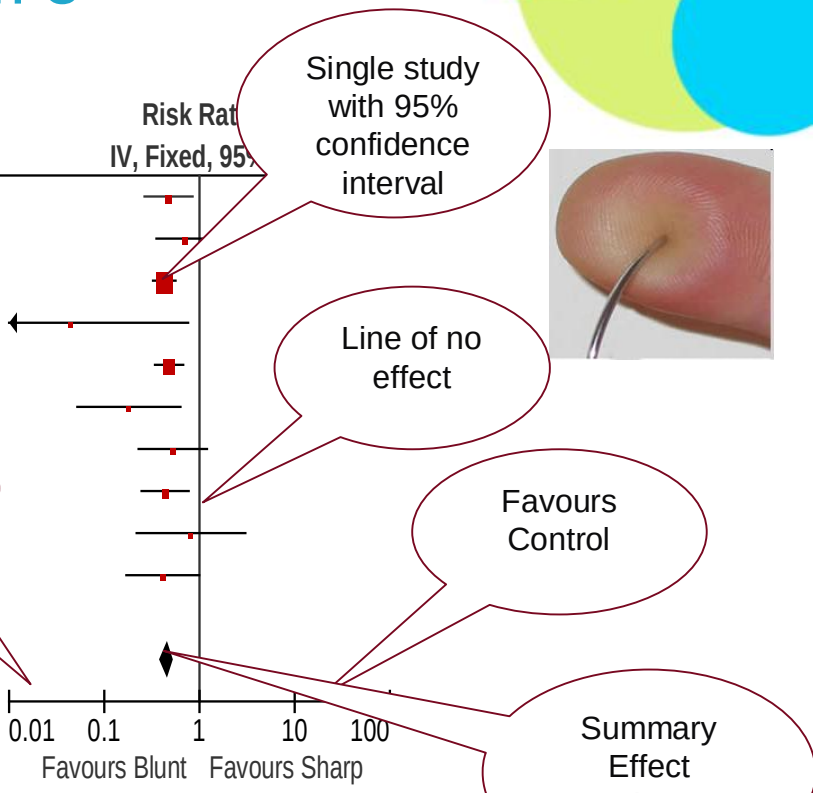
Blunt needles to prevent needle stick injuries in Health Care

Study or Subgroup	log[Risk Ratio]	SE	Weight	Risk Ratio IV, Fixed, 95% CI	Year
Wright 1993	-0.7472144	0.296334	8.6%	0.47 [0.27, 0.85]	1993
Thomas 1995	-0.35667494	0.348466	6.2%	0.70 [0.35, 1.39]	1995
Meyer 1996	-0.85131877	0.138984	39.2%	0.43 [0.33, 0.56]	1996
Rice 1996	-3.11351531	1.449138	0.4%	0.04 [0.00, 0.76]	1996
Mingoli 1996	-0.73315252	0.173816	25.1%	0.48 [0.34, 0.68]	1996
Hartley 1996	-1.70552479	0.636209	1.9%	0.18 [	1996
Ablett 1998	-0.64435702	0.421637	4.3%		
Nordkam 2005	-0.8303483	0.290628	9.0%		
Wilson 2008	-0.2048782	0.67082	1.7%		08
Sullivan 2009	-0.8873032	0.449089	3.8%	0.41 [0.17, 0.99]	09
Total (95% CI)			**100.0%**	**0.46 [0.38, 0.54]**	

Heterogeneity: Chi² = 7.45, df = 9 (P = 0.59); I² = 0%

Test for overall effect: Z = 9.03 (P < 0.00001)



Single study with 95% confidence interval

Line of no effect

Favours Intervention

Favours Control

Summary Effect Estimate

- Blunt needles effectively reduce the risk of needle stick injuries in surgeons with 54%

Parantainen 2011

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What to do with the evidence?

- In many hospitals no blunt needles available
- Physicians hard to convince of OSH measures

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Stress Management in Health Care Workers

- PubMed Search: 10.914 results
  - stress AND health personnel
- In health care
  - stress prevalent
    - due to work- and organisation related factors
  - stress leads to
    - higher turn over, lack of staff, higher labour costs
    - burn out, depression
- Cochrane Review Marine / Ruotsalainen:
  - Stress management for preventing and decreasing stress complaints in health care personnel
  - 19 Randomised trials; Current update 35 RCTs

Marine 2006

Ruotsalainen et al in press

Stress Management in Health Care Workers

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI	Year
3.1.1 Cognitive-behavioural intervention only vs. no intervention									
Norvell 1987	27.1	5.56	6	34.3	5.56	6	2.2%	-1.20 [-2.47, 0.08]	1987
Ewers 2002	10.51	6.525	10	18.91	6.525	10	3.8%	-1.23 [-2.21, -0.26]	2002
Delvaux 2004	1.7	0.756	54	2.039	0.78	58	25.4%	-0.44 [-0.81, -0.06]	2004
Rowe 2006	23.53	4.09	42	25.6	4.6	42	19.0%	-0.47 [-0.91, -0.04]	2006
Yamagishi 2008	2.83	0.67	20	2.97	0.83	16	8.2%	-0.18 [-0.84, 0.48]	2008
Subtotal (95% CI)			**132**			**132**	**58.5%**	**-0.49 [-0.74, -0.25]**	
Heterogeneity: Chi² = 4.32, df = 4 (P = 0.36); I² = 7%									
Test for overall effect: Z = 3.91 (P < 0.0001)									
3.1.2 Cognitive-behavioural intervention and relaxation vs. no intervention									
von Baeyer 1983	27	6.5	7	35.1	8.5	7	2.8%	-1.00 [-2.14, 0.13]	1983
West 1984	3	0.67	24	3.759	0.67	24	9.5%	-1.11 [-1.73, -0.50]	1984
Reynolds 1993	11.06	5.71	32	13.97	5.89	30	13.9%	-0.50 [-1.00, 0.01]	1993
Jones 2000	56.33	12.74	39	69.43	16.4	34	15.3%	-0.89 [-1.37, -0.41]	2000
Subtotal (95% CI)			**102**			**95**	**41.5%**	**-0.82 [-1.11, -0.52]**	
Heterogeneity: Chi² = 2.65, df = 3 (P = 0.45); I² = 0%									
Test for overall effect: Z = 5.46 (P < 0.00001)									
Total (95% CI)			**234**			**227**	**100.0%**	**-0.63 [-0.82, -0.44]**	
Heterogeneity: Chi² = 9.71, df = 8 (P = 0.29); I² = 18%									
Test for overall effect: Z = 6.51 (P < 0.00001)									
Test for subgroup differences: Chi² = 2.75, df = 1 (P = 0.10), I² = 63.6%									

Conclusion:
stress management reduces complaints with about 25%

Marine 2006/ Ruotsalainen

Ruotsalainen et al. in press

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What to do with the evidence?

- Stress often measured in health care
- Change from measuring to intervening
  - organise and offer stress management courses
  - refer our patients to stress management courses
  - advise employers about less stressful working conditions

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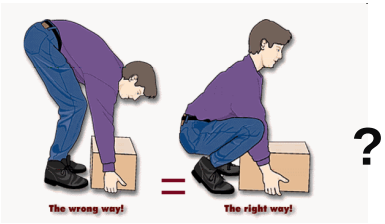
Training ‘correct’ lifting posture for back pain prevention

- Back pain frequent cause of disability
  - Work disability leads to suffering and costs
- Training 'correct' lifting postures prevalent in OSH
  - But training not very well supported by biomechanical and educational arguments

- Cochrane Review Martimo / Verbeek:

  Does training healthy workers in 'correct' lifting techniques prevent back pain?



- 9 RCTS (N=20,101) and 9 Cohort studies (N=1280)

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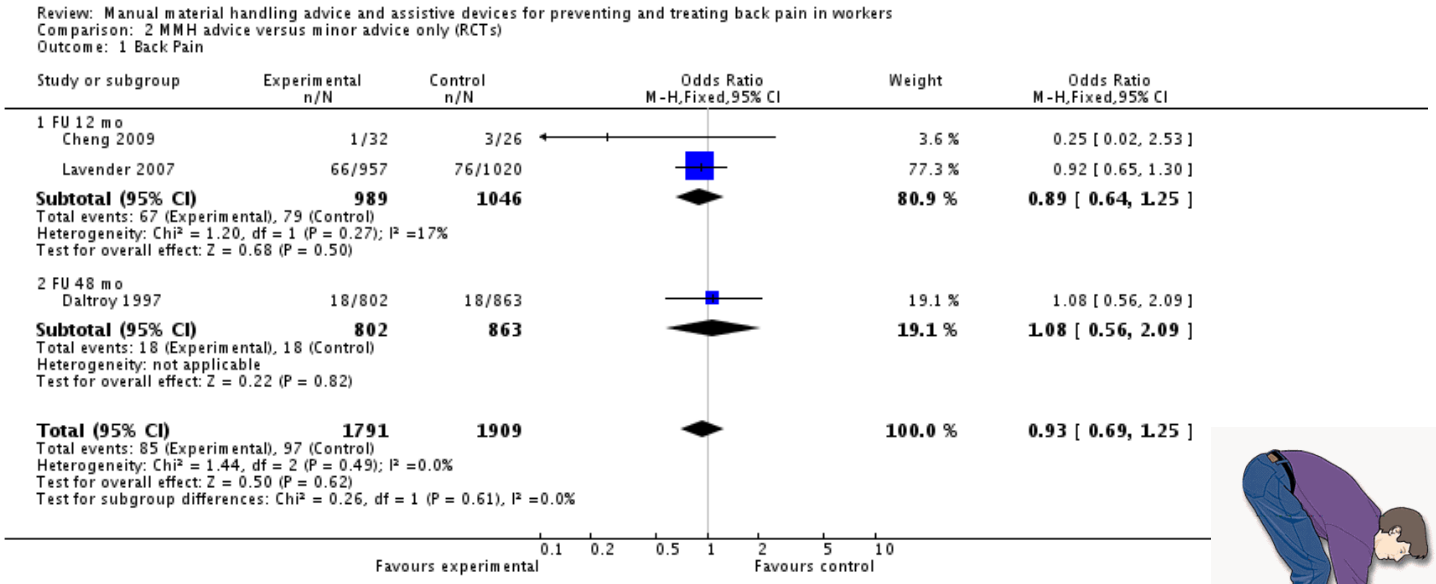
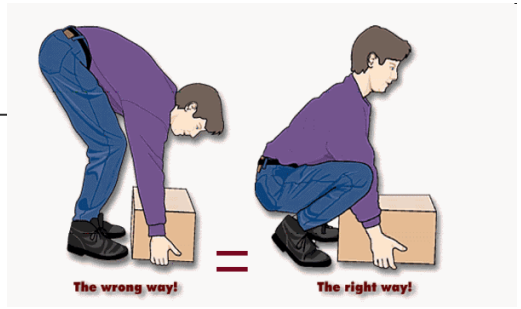
Training in correct lifting for preventing LBP





Conclusion:

- Training in lifting techniques does not prevent back pain

Martimo 2006, Verbeek 2011

Martimo et al 2006

What to do with the evidence

- Stop organising correct lifting courses to prevent back pain
- Change regulation that requires employers to organise training for preventing back pain
- Use other outcomes to justify training
  - comfort, well-being, efficiency

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How to deal with evidence

- Evidence that an intervention is *not* effective provokes negative emotions
  - Why not effective?
    - technical failure? implementation failure? theory failure?
  - Put into practice
    - advocate better noise regulation and enforcement
    - change regulation on manual material handling
    - use comfort and well-being as a measure of outcome

- Evidence that something is effective provokes feelings of indifference
  - "We knew that it would work any way"
  - Put into practice
    - advocate stress management
    - advocate and use blunt needles
    - advocate workplace HIV prevention programs

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Let's find out what works

- To do list
  - Update existing reviews
  - Cover important areas of occupational disease prevention:
    - Musculoskeletal, noise, asthma, dermatology etc
  - Cover important areas of injury prevention:
    - Construction, Agriculture
    - Mechanism based
  - Cover important areas of rehabilitation and RtW
    - Musculoskeletal, injuries, depression, mental health, cancer, RA
    - Interventions at organisational level

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