What I learned from Cochrane Work

Jos Verbeek

Cochrane Work Review Group

Cochrane Work

- Cochrane Work is a Review Group in Cochrane (Collaboration) which facilitates authors to produce Cochrane reviews and Cochrane to publish in the Cochrane Library

- Started in 2003 as Cochrane Occupational Health Field as an initiative of the Finnish Institute of Occupational Health (Kaj Husman, Jorma Rantanen and Harri Vainio)

- Became Cochrane Work Review Group in 2010 (Harri Vainio)

- Big thank you to 404 review authors, numerous editors and reviewers, Cochrane colleagues, and the managing editor Jani Ruotsalainen

1. SR is an established method in OSH

- Cochrane 2017 IF 6.8
- Cochrane Work 2017 IF 9.9
- Cochrane Work SRs used in national and international guidelines
- Cochrane Work methods support to WHO MNM guideline and environmental health guidelines

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COMMENTARY

WILEY AMERICAN JOURNAL OF INDUSTRIAL MEDICINE

Using systematic review in occupational safety and health

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Evaluation of scientific evidence is critical in developing recommendations to reduce risk. Healthcare was the first scientific field to employ a systematic review approach for synthesizing research findings to support evidence-based decision-making and it is still the largest producer and consumer of systematic reviews. Systematic reviews in the field of occupational safety and health are being conducted, but more widespread use and adoption would strengthen assessments. In 2016, NIOSH asked RAND to develop a framework for applying the traditional systematic review elements to the field of occupational safety and health. This paper describes how essential systematic review elements can be adapted for use in occupational systematic reviews to enhance their scientific quality, objectivity, transparency, reliability, utility, and acceptability.

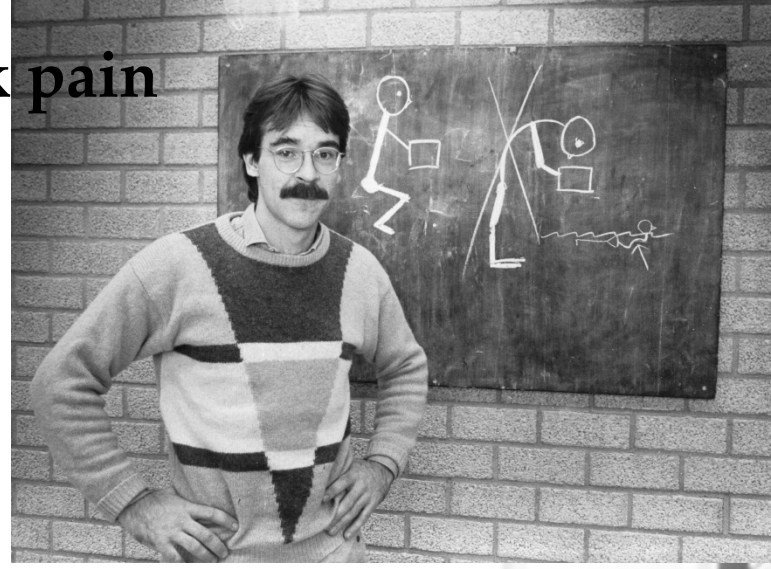
2. SRs are still not important enough

- Every article should start and end with the evidence base as presented by systematic review:
  - This is what we know…
  - This is what this study adds…

significant multivariate odds ratio (OR) for VTE of 2.8 [95% confidence interval (CI) 1.2–6.1], but insignificant multivariate OR for VTE in both the first and the latest study (19–21). All three studies reported an increased risk of VTE by 8–10% per hour longer sitting. The two latest of these studies considered occupational groups as well and found no association in the multivariate analyses (20, 21). A Polish study has found computer use to be a predictor of seated immobility thromboembolism and an American study has found a positive association between TV viewing and VTE risk (22, 23). A Danish register-based cohort study found that sedentary workers, defined by different driver occupations, have a higher risk of VTE than workers with dynamic exertion at work, with a relative risk of 1.13 (95% CI 0.99–1.29) (24).

Considering these findings and the overall frequency of sedentary occupations, the objective of this paper is to examine if sedentary occupational activity increases

Training in lifting techniques prevents back pain



3. SRs can shock your beliefs

Review: Manual material handling advice and assistive devices for preventing and treating back pain in workers
Comparison: 2 MMH advice versus minor advice only (RCTs)
Outcome: 1 Back Pain

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
1 FU 12 mo					
Cheng 2009	1/32	3/26		3.6 %	0.25 [0.02, 2.53]
Lavender 2007	66/957	76/1020		77.3 %	0.92 [0.65, 1.30]
Subtotal (95% CI)	**989**	**1046**		**80.9 %**	**0.89 [0.64, 1.25]**
Total events: 67 (Experimental), 79 (Control)					
Heterogeneity: Chi² = 1.20, df = 1 (P = 0.27); I² =17%					
Test for overall effect: Z = 0.68 (P = 0.50)					
2 FU 48 mo					
Daltroy 1997	18/802	18/863		19.1 %	1.08 [0.56, 2.09]
Subtotal (95% CI)	**802**	**863**		**19.1 %**	**1.08 [0.56, 2.09]**
Total events: 18 (Experimental), 18 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.22 (P = 0.82)					
Total (95% CI)	**1791**	**1909**		**100.0 %**	**0.93 [0.69, 1.25]**
Total events: 85 (Experimental), 97 (Control)					
Heterogeneity: Chi² = 1.44, df = 2 (P = 0.49); I² =0.0%					
Test for overall effect: Z = 0.50 (P = 0.62)					
Test for subgroup differences: Chi² = 0.26, df = 1 (P = 0.61), I² =0.0%					

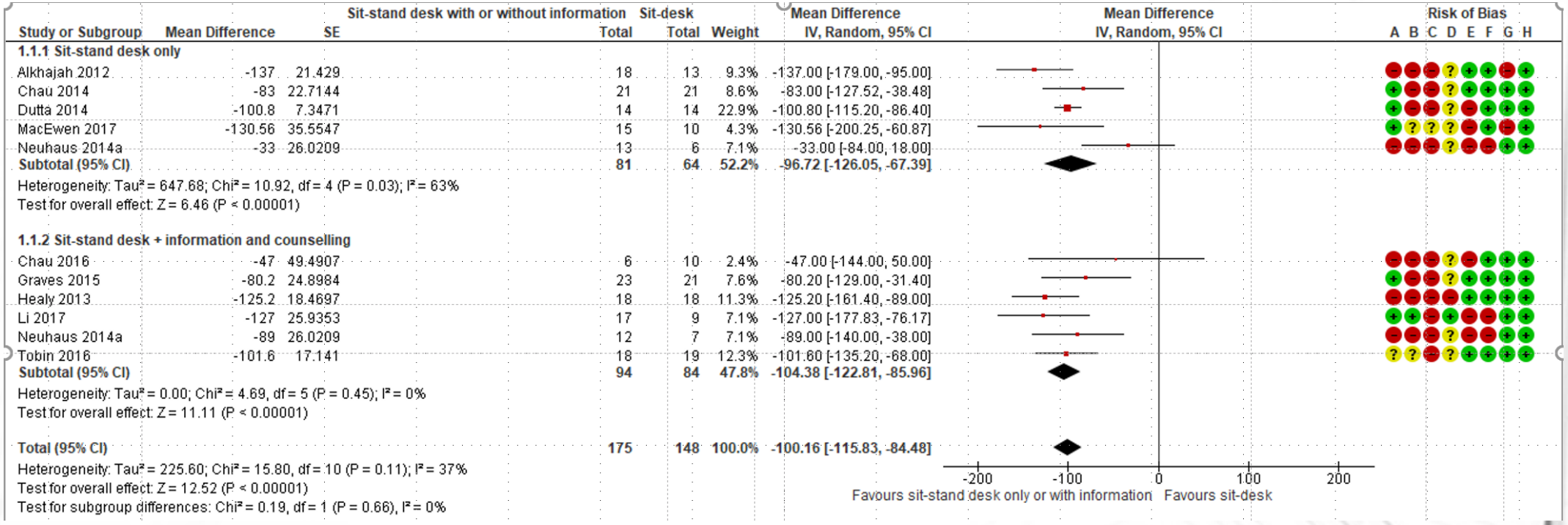
0.1 0.2 0.5 1 2 5 10
Favours experimental Favours control

Training in lifting techniques does not prevent back pain

4. Sitting is not the new smoking

Cochrane Database of Systematic Reviews
Workplace interventions for reducing sitting at work
Cochrane Systematic Review - Intervention | Version published: 17 December 2018 see what's new
https://doi.org/10.1002/14651858.CD010912.pub5
New search Conclusions changed Am score 1 View article information
Nipun Shrestha | Katriina T Kukkonen-Harjula | Jos H Verbeek | Sharea Ijaz | Veerle Hermans | Zeljko Pedisic

- ..but decline in occupational physical activity is a serious problem



- Even though sitting time can be reduced, standing is not likely to repair this

5. Better, more relevant questions needed for RtW

- Existing Reviews:
  - RtW Cancer
  - RtW Arthritis
  - Employment HIV
  - RtW Depression
  - RtW Coronary heart disease
  - RtW Serious Mental Disorders
  - Coordination of RtW
  - Workplace disability prevention
  - Cognitive rehabilitation in Traumatic Brain Injury
- What are these interventions? How do they work? Can similar interventions be combined across diseases?

6. A good SR team is gold

Night-shift work and breast cancer – a systematic review and meta-analysis

by Sharea Ijaz,[1] Jos Verbeek, PhD,[1] Andreas Seidler, PhD,[2] Marja-Liisa Lindbohm, PhD,[3] Anneli Ojajärvi, PhD,[3] Nicola Orsini, PhD,[4] Giovanni Costa, PhD,[5] Kaisa Neuvonen,[6] MSc

Cochrane Database of Systematic Reviews

Workplace interventions for reducing sitting at work

Cochrane Systematic Review - **Intervention** | Version published: 17 December 2018 **see what's new**

https://doi.org/10.1002/14651858.CD010912.pub5

New search **Conclusions changed** Am score 1 **View article information**

Nipun Shrestha | Katriina T Kukkonen-Harjula | Jos H Verbeek | Sharea Ijaz | Veerle Hermans | Zeljko Pedisic

7. SRs should be automated soon

BMJ

BMJ 2013;346:f139 doi: 10.1136/bmj.f139 (Published 10 January 2013)

EDITORIALS

The automation of systematic reviews

Would lead to best currently available evidence at the push of a button

Guy Tsafnat *senior research fellow*[1], Adam Dunn *research fellow*[1], Paul Glasziou *professor*[2], Enrico Coiera *professor*[1]

For this vision to become reality, computer scientists, informaticians, and clinicians must join forces. Throwing our limited resources at the diminishing returns of hand crafting systematic reviews is no longer sustainable. Instead, some of that energy and creativity needs to be diverted into building the machinery for the next stage of evidence based medicine. The size of the task need not be daunting. Automating even small steps in the process of systematic review will shorten the time before reviews are published and increase the number of questions for which reviews are created. With time and trust, more of the process will be delegated to automation.

Eventually, the notion of a review having a fixed publication date and becoming almost immediately out of date will disappear as autonomous agents sift the evidence continuously and use their protocols to provide updated reviews on demand.[15] Furthermore, providing systematic review "machines" at the point of care will mean that clinicians will know that they always have access to the best evidence.

8. Big potential for SR development

- Cochrane publishes mainly intervention reviews
- For OSH, environmental health, food safety, exposure reviews important
- Basis for Occupational Exposure Limit values and other guidelines
- Exposure is different from Intervention: need for adaptation

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OSHRI Safety and Health at Work

journal homepage: www.e-shaw.org

Review Article

Occupational Exposure to Knee Loading and the Risk of Osteoarthritis of the Knee: A Systematic Review and a Dose-Response Meta-Analysis

Jos Verbeek [1,*], Christina Mischke [1], Rachel Robinson [1], Sharea Ijaz [1], Paul Kuijer [2], Arthur Kievit [3], Anneli Ojajärvi [1], Kaisa Neuvonen [1]

Cancer risk in workers exposed to night work

Protocol information

Review number: 063

Authors

Jennifer Ritonja[1], Kyriaki Papantoniou[2], Agnes Ebenberger[3], Gernot Wagner[3], Gerald Gartlehner[4,5], Irma Klerings[3], Rebecca L Morgan[6], Harald Herkner[7], Kristan Aronson[1,8], Eva S Schernhammer[2]

9. Applying findings of SR big challenge

- Most of our reviews conclude that there is low quality or very low quality evidence and that better quality studies are needed

- How to make better use of the evidence?
  1. Accept that it is low quality and that it is unlikely that the evidence base will improve
  2. Use other arguments such as costs, preferences, public health importance

10. Alliance4OSH

- Funding Cochrane Review Groups not easy
- Finnish Institute of Occupational Health withdrew funding
- Global Alliance for Evidence in Occupational Safety and Health
  - Promote EB OSH
  - Implement EB OSH
  - Support Cochrane Work
  - Membership fee model

Conclusion

- Cochrane Work successful in producing SR of OSH topics
- Room for improvement: work participation
- Best of luck for the satellite in improving the evidence base for interventions to enhance work participation