

## Letters to the Editor

Scand J Work Environ Health 2018;44(4):439-440

doi:10.5271/sjweh.3748

Authors' response: Letter to the Editor concerning OCRA as preferred method in ISO standards on biomechanical risk factors

by Armstrong TJ, Burdorf A, Descatha A, Farioli A, Graf M, Horie S, Marras WS, Potvin JR, Rempel D, Spatari G, Takala E-P, Verbeek J, Violante FS

**Affiliation:** Ergonomics Program; 1301 S. 46th Street, Building 163; University of California, Berkeley; Richmond, California, USA. david.rempel@ucsf.edu

Refers to the following texts of the Journal: 2014;40(6):539-654 2016;42(4):257-353 2018;44(3):255-334 2018;44(4):335-440 2010;36(1):1-80

This article in PubMed: www.ncbi.nlm.nih.gov/pubmed/29961082



Scand J Work Environ Health. 2018;44(4):439-440. doi:10.5271/sjweh.3748

## Authors' response: Letter to the Editor concerning OCRA as preferred method in ISO standards on biomechanical risk factors

We thank Drs. Colombini and Occhipinti for their personal reply to our Discussion Paper (1, 2). We share the overall goal of preventing workplace injuries and welcome a discussion of the ISO process on workplace ergonomics standards; this was the primary aim of the Discussion Paper. We hope that other members of the relevant ISO working groups will also participate in the discussion.

However, Drs. Colombini and Occipinti misinterpret our paper. Our aim was not to "addresses the scientific basis of ISO standards on biomechanical risk factors and more specifically the OCRA methodology". The purpose was to point out that "while the ISO process has value, it has also clear limitations when it comes to developing occupational health and safety standards that should be based on scientific principles". It is true that our paper discussed the OCRA method, but only as an example, in a single paragraph. We noted that the OCRA method was promoted as the preferred method by the ISO working group even though there were other risk assessment methods which, at the time (and currently), were at least as scientifically valid (3). The discovery that, while on the ISO working group, Drs. Colombini and Occipinti elevated the risk assessment method that they developed (OCRA) over the other methods, demonstrates one of several limitations of the ISO process, namely, the lack of attention to conflict of interest.

Finally, we would like to draw attention to the note by Drs. Colombini and Occhipinti that "the ISO standards in question were actually developed by the working group, as mandated by ISO, over the period 2000–2004". This long-elapsed time, without an update to the standard, should be a concern for all scientists given the large quantity of quality scientific literature published since then (eg, 3–6). Fourteen years is well beyond what is recommended in the ISO guidelines.

## References

- Colombini D, Occhipinti E. Scientific basis of the OCRA method for risk assessment of biomechanical overload of the upper limb, as preferred method in ISO standards on biomechanical risk factors. Scand J Work Environ Health. 2018;44(4):436–438. https://doi.org.10.5271/sjweh.3746
- Armstrong T J, Burdorf I A, Descatha A, Farioli A, Graf M, Horie S, Marras W S, Potvin J R, Rempel D, Spatari G, Takala E P, Verbeek J, Violante FS. Scientific basis of ISO standards on biomechanical risk factors. Scand J Work Environ Health. 2018;44(3):323-329. https://doi.org/10.5271/sjweh.3718
- Takala EP, Pehkonen I, Forsman M, Hansson GA, Mathiassen SE, Neumann WP, Sjøgaard G, Veiersted KB, Westgaard RH, Winkel J. Systematic evaluation of observational methods assessing biomechanical exposures at work. Scand J Work Environ Health. 2010;36:3-24. https://doi.org/10.5271/ sjweh.2876
- Paulsen R, Gallu T, Gilkey D, Reiser R, Murgia L, Rosecrance J. The inter-rater reliability of Strain Index and OCRA Checklist task assessments in cheese processing. Applied Ergonomics. 2015; 51,199-204. https://doi.org/10.1016/j. apergo.2015.04.019
- Kapellusch JM, Gerr FE, Malloy EJ, Garg A, Harris-Adamson C, Bao SS, Burt SE, Dale AM, Eisen EA, Evanoff BA, Hegmann KT, Silverstein BA, Theise MS, Rempel DM. Exposure-response relationships for the ACGIH threshold limit value for hand-activity level: results from a pooled data study of carpal tunnel syndrome. Scand J Work Environ Health. 2014;40:610-20. https://doi.org/10.5271/sjweh.3456
- Violante FS, Farioli A, Graziosi F, Marinelli F, Curti S, Armstrong TJ, Mattioli S, Bonfiglioli R. Carpal tunnel syndrome and manual work: the OCTOPUS cohort, results of a ten-year longitudinal study. Scand J Work Environ Health. 2016;42:280-90. https://doi.org/10.5271/sjweh.3566

Tom J Armstrong, PhD,<sup>1</sup> Alex Burdorf, PhD,<sup>2</sup> Alexis Descatha, MD, PhD,<sup>3,4,5</sup> Andrea Farioli, PhD,<sup>6</sup> Maggie Graf, PhD,<sup>7</sup> Seichi Horie, MD, PhD,<sup>8</sup> William S Marras, PhD,<sup>9</sup> Jim R Potvin, PhD,<sup>10</sup> David Rempel, MD,<sup>11,12</sup> Giovanna Spatari, MD,<sup>13</sup> Esa-Pekka Takala, PhD,<sup>14</sup> Jos Verbeek, PhD,<sup>15</sup> Francesco S Violante, MD <sup>6</sup>

- 1 Center for Ergonomics, Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, USA.
- 2 Department of Public Health, Erasmus MC, Rotterdam, The Netherlands.
- 3 AP-HP, EMS (Samu92), Occupational Health Unit, Raymond Poincaré University Hospital, Garches, France
- 4 University of Versailles Saint-Quentin-en-Yvelines, Versailles, France.
- <sup>5</sup> INSERM, UMS 011 UMR1168, Villejuif, France.
- 6 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy.
- 7 Work and Health Division of Swiss State Secretariat for Economic Affairs, Bern, Switzerland.
- 8 Department of Health Policy and Management, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan.

- 9 The Ohio State University, Integrated Systems Engineering, Spine Research Institute, Columbus, OH, United States.
- 10 Department of Kinesiology, McMaster University, Hamilton, Ontario, Canada.
- 11 Division of Occupational and Environmental Medicine, University of California, San Francisco, San Francisco, California, USA.
- 12 Department of Bioengineering, University of California, Berkeley, Berkeley, California, USA.
- 13 Department of Environmental Science, Safety, Territory, Food and Health, Messina University, Messina, Italy.
- 14 Work Ability and Working Careers, Finnish Institute of Occupational Health, Helsinki, Finland.
- 15 Finnish Institute of Occupational Health, Cochrane Work Review Group, Neulaniementie 4, Kuopio, Finland.

Correspondence to: David Rempel, Ergonomics Program; 1301 S. 46<sup>th</sup> Street, Building 163; University of California, Berkeley; Richmond, California, USA. [E-mail: david.rempel@ucsf.edu]