

## The Ontario Universities Back Pain Study (OUBPS)

– W.P. Neumann 2005

The OUBPS examined physical and psychosocial risk factors related to low back pain in workers at General Motors in Canada. It remains one of the world's largest most comprehensive databases of workplace exposure measures.

In the 1980s and early 90's researchers were debating whether risk for low back pain (LBP) was entirely psychosocial or entirely biomechanical – a polemic Frank et al. dubbed 'unhelpful' [1]. In response to this controversy the Institute for Work & Health in Toronto, Canada initiated the Ontario Universities Back Pain Study (OUBPS), a large incident case-control study at General Motors in Ontario, Canada where 10,000 hourly employed workers formed the study base. The study, which engaged a multidisciplinary team from a number of universities in Ontario, included state of the art in epidemiological design as well as the best psychosocial and biomechanical data collection techniques available [2-14], based on the concept of a 'common metric' [7]. Psychosocial, Psychophysical, and symptom data were collected by interview administered questionnaire [8]. Biomechanical exposure data was collected over 2 ½ years from a remote research centre established at the G.M. Oshawa site where over 10,000 workers produced 24 hours/day in two car plants and 16 hours / day in a truck plant.

### Main Findings of the OUBPS

The Ontario Universities back Pain Study (OUBPS) study showed clearly that biomechanical factors, psychosocial factors, as well as psychophysical factors were all independently associated with risk of low back pain reporting [3, 8]. Analysis of the biomechanical databases revealed that peak load and shift-cumulative load were both simultaneously and independently associated with LBP reporting risk, a result for which we received the International Biomechanics Society's 'Elsevier Clinical Biomechanics Award' in 1997 [2]. Taken together these results demonstrate a number of different approaches to identifying and quantifying risk to both physical and psychosocial workplace factors associated with MSDs and that these factors all provide independent contribution to an individual's 'total' MSD risk. Noteworthy is that these independent risks *multiply* when present in combination resulting in staggeringly high odds ratios. **The substantial variance accounted for in these models suggests substantial opportunity to reduce MSD risk in the workplace** [3-6, 8].

Theoretical and empirical evidence suggests that the reduction of these risk factors will simultaneously assist in the return to work of individuals with pain. In this sense then the debate between focus on 'primary' and 'secondary' prevention is also a kind of 'unhelpful polemic' [1]. More helpful to the designers and operators of work systems would be knowledge on the shape of the dose-response relationship expressed in terms that are meaningful to the developers [e.g. 15] and that could be integrated seamlessly into the organisations development processes.

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