

April 29-30, 2019  
London, UK

Alan Hedge, Arch Med 2019, Volume 11  
DOI: 10.21767/1989-5216-C1-008

## Prescient ergonomics – the role of predictive analytics in occupational safety and health to prevent musculoskeletal injuries

**Alan Hedge**

Cornell University, USA

**E**rgonomics is directly affects the risks of musculoskeletal disorders that currently cost US businesses \$1 billion per week! Ergonomists know how to improve the design of office work places so that people will work in neutral postures that will benefit their health, eliminate musculoskeletal injury risks, and boost their productivity. However, traditional ergonomics programs typically are reactive, and interventions only happen after injuries have occurred. This 'fire fighting' approach is unpredictably haphazard, costly and more challenging because often workers have already been injured. There are always too few ergonomists for too many cases in companies. Proactive ergonomics programs focus on strategies to prevent injuries from happening by early detection and intervention. But implementing a good proactive program requires proven early detection tools. Medicine provides a model worth copying. Regular health check-ups allow physicians to detect patterns of risks factors for subsequent disease so that patients can change their lifestyles and/or medication to reduce disease risks. Similarly, regular ergonomics check-ups can provide the same benefit. Modern computing power coupled with an ergonomic expert system can provide the predictive analytics tools and business intelligence that allows a wide variety of ergonomic risk factors to be evaluated quickly and at low cost. Prescient ergonomics is the new strategy that incorporates regular ergonomic wellness check-ups for early detection of injury and other ergonomic risks, which then allows for

early interventions, either training or products or both. Knowing what the injury risks are and who is at risk allows targeted interventions that prevents injuries which save money. Knowing what other ergonomic risks are present in the design of the tools, workplace, techniques etc. allows interventions that will improve productivity and reduce costs by ameliorating these risks. Prediction and prevention always beats reaction!

### Biography

Alan Hedge is a Professor in the Department of Design and Environmental Analysis, Cornell University and he directs the Cornell Human Factors and Ergonomics Laboratory. He specializes in ergonomic designs that promote health, comfort and productivity, especially in office and healthcare workplaces. He is a Fellow of the Human Factors and Ergonomics Society and was awarded the 2003 Alexander Williams Design Award and the 2009 Oliver Hansen Outreach award. He is also a Fellow of the Institute for Ergonomics and Human Factors (UK), a Fellow of the International Ergonomics Association, a Certified Professional Ergonomist, and a Chartered Ergonomist. He has published 4 books, 40 chapters and 250 articles on these topics. He is on the Editorial Board of several ergonomics and related journals. Since, 2013 he has been the program chair for the National Ergonomics Conference and Exposition. He frequently speaks at national and international conferences and appears in the media, including TV, radio, newspaper and magazine articles.

ah29@cornell.edu