

Wearable technologies at work: from measurement of physical work demands to prevention of MSD

Keynote Sessions

Faculty:

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Despite numerous efforts, high physical work demands such as prolonged walking or forward bending of the back are still prevalent in manual jobs such as cleaning and healthcare. The corollary of high physical work demands is musculoskeletal disorders (MSD) which pose a significant societal burden worldwide. Numerous interventions have been conceived and implemented in workplaces to prevent high physical work demands. However, most of these interventions have not achieved their intended outcomes, likely due to the reliance on inaccurate, biased self-reports and not being specific enough to design targeted interventions. The emergence of wearable technology has provided greater efficacy in measuring the physical work demands and enhancing the design of targeted interventions. However, the application of wearables in this context has been limited due to cost, laboriousness, and safety and transparency concerns regarding compliance with data regulations. In response to these limitations, a new generation of wearable-based solutions is upcoming that are more feasible, come together with validated algorithms, and comply with data regulations. With less cost and high feasibility, wearables-based solutions can accurately measure physical work demands and provide automated feedback that helps customise the interventions regularly, potentially making them more effective. Collaboration among workplaces, researchers and wearable manufacturers is essential to develop further and implement these wearable-based solutions for preventing MSDs at the workplace.

About Our Speaker:

Nidhi Gupta

Nidhi Gupta, PhD, currently holds the position of Senior Researcher at the National Research Centre for the Working Environment (NFA) in Denmark. She subsequently served as a post-doctoral fellow at NFA after completing her doctoral degree in Sports Science at the Nanyang Technology University (Singapore). Dr Gupta has contributed to various national and international research initiatives dedicated to promoting accurate assessments of physical work demands and improving the prevention of musculoskeletal disorders (MSD). Her research interests lie in developing user-friendly, precise methods for measuring physical work demands in large-scale cohorts and surveillance and utilising innovative analytical techniques to uncover risk factors that contribute to MSD.

