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PHYSICAL ACTIVITY AND FITNESS: CHALLENGES AND NEW PERSPECTIVES
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Keynote Presentation

Opportunities in "Lifestyle Medicine": Integrating continuous, non-invasive measures to achieve more potent behaviour change

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After years of waiting in the wings, physical activity has recently taken centre stage in the world of **sport, exercise, and health science**. In a UN High Level Meeting in September, 2011, the World Health Organisation (WHO) made a Political Declaration on the Prevention and Control of Non-communicable Diseases (NCD). NCDs, principally cardiovascular diseases, diabetes, cancers and chronic respiratory diseases, are the leading causes of preventable morbidity and disability, and currently cause over 60% of global deaths. This landmark meeting elevated NCDs to the highest level of leadership at global, national and local levels to foster whole of government, cross sector collaboration in all aspects of health.

The WHO has put together a comprehensive global monitoring framework, including indicators, and a set of voluntary global targets for the prevention and control of NCDs. For the first time, physical activity has been included in the targeted constellation of health risk factors, alongside smoking, blood pressure and diet. To help achieve targets, the WHO has indicated that improving country-level surveillance and monitoring should be a top priority.

A novel way to accomplish this would be to design a **War Room for Physical Activity Surveillance/Research.** Perhaps the best way to explain this ambitious idea is to seed your imagination with a picture in your mind of the NASA Mission Control room. Control rooms such as these are not uncommon in the communicable disease realm (think of SARS and West Nile outbreaks); however, to our knowledge, nothing like this has been proposed to tackle NCD's (i.e., chronic disease; long term conditions; lifestyle disease).

Therefore, the main aim of this presentation will to showcase novel, adaptable, scalable, unobtrusive technologies and systems that quantify movement behaviours linked to relevant health outcomes with the expressed intent to facilitate a step change in understanding lifestyle behaviour change.

Keywords: *physical activity, sedentary behaviour, sensors, feedback; self-monitoring*