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Obesity prevention and research through mobile technology and virtual world

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Abstract

Within the past few decades, technology has flourished rapidly in health and fitness promotion and research, particularly in obesity prevention. Through mobile technology, dietary and physical activity (PA) tracking and assessments are becoming less burdensome, portable, personalized, and sharable/interoperable. Combinations of text, digital image, video, voice, and/or artificial intelligence make reporting of food type and portion size feasible; global positioning system automatically stamps the location; and social networking further enhances motivation and adherence. Wearable sensors, including built-in gyroscope/ accelerometer in smart phones also decrease the burden to track energy expenditure and more accurately estimate energy balance.

A pilot study at Oregon State University (n=3,805) integrated the use of USDA Supertracker Food Tracker (SFT) and Physical Activity Tracker in a health and fitness bacclalaureate core course. A subset of 206 students rated the SFT; 90% considered it helpful to them in promoting healthy diet. The use of national food composition databases in SFT diet analysis adds credibility to personalized assessments.

Researchers and educators are also leveraging from immersive environments to reach 'residents' in the virtual world. Innovative interventions are emerging through education center, medical center, CDC, role play and etc, and some are finding positive impacts on obesity prevention. Nonetheless, there is still a significant lag between mobile technology/virtual world and evidence-based research and education. The seminar will provide an overview of existing interventions, related theoretical frameworks, best practices, discussion of research findings, and future directions, especially partnering with ARS Nutrient Data Laboratory and the industry.

Biography

Siew Sun Wong is an Assistant Professor in nutrition and Extension Specialist at Oregon State University. Her expertise is community nutrition and epidemiology. She is the Lead PI for a recent $4.7 million, 5-year USDA integrated research in childhood obesity prevention that uses virtual world, innovative low-cost wearable sensors, and mobile technology.