

The International 22nd Puijo Symposium
"PHYSICAL EXERCISE IN CLINICAL MEDICINE –
CRITICAL APPRAISAL OF SCIENTIFIC EVIDENCE"
June 24 - 28, 2014 Kuopio, Finland

**EMERGING TECHNOLOGIES TO DETERMINE THE LOCATION OF PHYSICAL
ACTIVITY AND SEDENTARY BEHAVIOURS**

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Purpose

Global positioning systems (GPS) have been used to determine the outdoor location of physical activity (PA) and sedentary time (ST); however, GPS cannot provide indoor location. A high percentage of time is spent inside. This paper systematically reviews technologies that assess the indoor location of PA and ST

Methods

To identify research papers, four electronic databases were searched using key terms related to behaviour, measurement and location. This was supplemented by searching personal files and forward and backward searching. To identify commercially available devices not previously used in research, systematic searches of Google, Yahoo and Bing were also performed

Results

Research database searches identified 11 kinds of technology from 44 publications. The most widely used were wearable cameras, radio-frequency identification (RFID) and wireless localisation technologies. Searches for commercial devices identified 70 real time location systems (RTLS) using wireless localisation and 20 wearable cameras. RFID relies on interaction between a tag and reader and is best used as a discreet measure of location, e.g. to determine if an individual is near a sofa. RTLS is a more continuous measure; determining location via a buildings wireless network. Wearable cameras can be used to infer location and provide contextual information including the activity being performed and who is present

Conclusion

RFID, RTLS and wearable cameras can enhance the contextual profiling of PA and ST by illuminating the indoor locations in which people are active or sedentary, determining the flow of people through a facility, and showing how people interact with each other and their environment