

Public Health Assisting Smart Technologies: Children's Hospital Pilot

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Principal Investigator: June Tester, MD

Synopsis:

This project aims to assess acceptability and function of a wearable mote-based sensor device that can measure body motion and physical activity, physiology (heart and respiratory rate). Additionally, we will be investigating adding feedback capability for wearers, such as flashing lights that indicate levels of activity. Among children in a weight management clinic, we will be testing use of this external wearable device among children who are exercising as a part of their clinic appointment, doing a variety of activities such as jumping rope, throwing a ball, and playing basketball. The system is non-invasive, and requires only wearing sensors on fabric bands around the wrists, waist, and/or ankles for monitoring motion. Optionally, heart and respiratory rate may be monitored. This involves wearing 2 stick-on disposable electrodes on the front and back of the torso. The system measures real-time accelerations at each sensor location, from which motion, physical activity, and energy expenditure may be derived. Afterwards, children will be asked to complete a brief questionnaire related to user acceptance of the system. The goal of this research is to contribute towards the development of wearable devices that can both serve as data collection devices for physical activity research as well as enhance clinical care by providing feedback.