World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:13, No:06, 2019

Development and Usability Assessment of a Connected Resistance Exercise Band Application for Strength-Monitoring

Authors : J. A. Batsis, G. G. Boateng, L. M. Seo, C. L. Petersen, K. L. Fortuna, E. V. Wechsler, R. J. Peterson, S. B. Cook, D. Pidgeon, R. S. Dokko, R. J. Halter, D. F. Kotz

Abstract : Resistance exercise bands are a core component of any physical activity strengthening program. Strength training can mitigate the development of sarcopenia, the loss of muscle mass or strength and function with aging. Yet, the adherence of such behavioral exercise strategies in a home-based setting are fraught with issues of monitoring and compliance. Our group developed a Bluetooth-enabled resistance exercise band capable of transmitting data to an open-source platform. In this work, we developed an application to capture this information in real-time, and conducted three usability studies in two mixed-aged groups of participants (n=6 each) and a group of older adults with obesity participating in a weight-loss intervention (n=20). The system was favorable, acceptable and provided iterative information that could assist in future deployment on ubiquitous platforms. Our formative work provides the foundation to deliver home-based monitoring interventions in a high-risk, older adult population.

Keywords : application, mHealth, older adult, resistance exercise band, sarcopenia
Conference Title : ICBAN 2019 : International Conference on Body Area Networks
Conference Location : New York, United States
Conference Dates : June 04-05, 2019