Health technology has the potential to support behavior change by measuring performance and providing users with visualizations of this performance as feedback. Such visual feedback has had limited success in changing health behaviors, but it is not clear why. We conducted a systematic review of the visual feedback literature to develop an organizational framework representing the visual feedback-action process. We identified the components that have been investigated in the context of visual feedback. These components are classified into four categories: visualization types (e.g., bar graph) and variables (e.g., color); feedback characteristics (e.g., social comparison); psychological processes (e.g., motivation) and action (e.g., exercise). The insights will inform the design of feedback visualizations in a smartphone application to support medication adherence for older adults. More broadly, this integrative perspective will yield principles of feedback visualization techniques and components that influence the behavior change process and develop a roadmap to facilitate the design.

PERSPECTIVES ON HOW FALL PREVENTION TECHNOLOGIES CAN SUPPORT OLDER ADULTS' SELF-MONITORING PROCESSES

Shannon Mejia, Sungjae Hong, Aileen Griffin, Tai-Te Su, and Jacob Sosnoff, 1 University of Illinois, Champaign, Illinois, United States, 2 University of Illinois at Urbana-Champaign, Aurora, Illinois, United States, 3 University of Illinois at Urbana-Champaign, Champaign, Illinois, United States, 4 School of Health Professions, University of Kansas Medical Center, Kansas City, Kansas, United States

Fall risk increases as older adults lose the functional resources necessary to maintain balance while completing everyday activities. As functional resources often decline gradually with age, momentary deficits may not be apparent until after a fall occurs. Mobile fall prevention technologies could support older adults in self-monitoring their ability to safely navigate their environments. In this paper we present perspectives on self-monitoring and feedback in a sample of older adults (n = 20, 50% female, age 65+) who had self-assessed their balance via a smartphone for 30 consecutive days. Thematic analysis of semi-structured interviews showed that fall history differentiated a) participants’ awareness of day-to-day variation in functional ability; b) trust in the accuracy of self-monitoring; and c) imaginations of what types of feedback a mobile fall prevention technology should provide. Insight on older adults’ internal self-monitoring processes and guidelines for feedback design are discussed.

WEAK TIES THAT BIND: ICT USE, SOCIAL RELATIONS, AND DEPRESSIVE SYMPTOMS AMONG OLDER ADULTS

Jess Francis, Noah Webster, and Nour Fakhoury, University of Michigan, Ann Arbor, Michigan, United States

Information and communication technology (ICT) use has been associated with well-being among older adults. This link is often attributed to the fact that technology use facilitates connecting with social relations generally. What is less known, however, is the extent to which distinct dimensions of social relations uniquely influence how ICT use affects health. Thus, the importance of weak ties is receiving increased attention. Using data from the Detroit-based Social Relations Study collected in 2015, we examine the extent to which separate dimensions of weak ties (contact frequency and network size) mediate and moderate the link between technology use and depressive symptoms among adults age 65+ (n=213). A greater number of less close relations mediated the link as it was associated with technology use and fewer depressive symptoms. A moderating effect was also found as technology use was associated with fewer depressive symptoms only among those with lower contact frequency.

Session 1480 (Symposium)

THE STUDY OF MUSCLE, MOBILITY, AND AGING (SOMMA): AN OVERVIEW

Chair: Steve Cummings
Co-Chair: Peggy Cawthon
Discussant: Russell Hepple

SOMMA is an NIA-funded cohort study to identify biological determinants of mobility and fitness. The overall aim of SOMMA is to use biopsies, novel biomarkers, advanced imaging, and intensive physical and cognitive assessments to elucidate the biological processes that contribute to changes in mobility and physical fitness with aging. SOMMA will recruit 875 people age 70+ (of whom about 200 have been enrolled.) We take biopsies of the vastus lateralis muscle to quantify mitochondrial content and function of the electron transport chain. We use 31PMR spectroscopy to quantify mitochondrial capacity to generate ATP in quadriceps muscle (ATPmax). We will quantify other biological properties in biopsies including denervation, autophagy and accumulated biochemical damage and use gene expression to discover pathways that contribute to mobility and fitness. SOMMA uses MR for quadriceps volume and D3Cr dilution for total skeletal muscle mass, cardiopulmonary exercise testing to measure fitness (VO2 peak). We are also making many other intensive assessments of physical and cognitive function. Mobility endpoints include baseline and three year change in 400 m and 4 meter gait speed and fitness. SOMMA is building a large biobank of muscle, adipose blood, and urine specimens that will be available for ancillary studies. In this Symposium, we will present results from analyses of associations between muscle mitochondrial function and strength, muscle mass, cognitive performance, gait speed, and fitness. The symposium will also preview opportunities for collaborations and ancillary studies with SOMMA.

INITIAL RESULTS FROM SOMMA: CONTRIBUTION OF MITOCHONDRIAL FUNCTION TO WALKING AND FITNESS

Steve Cummings, Peggy Cawthon, Bret Goodpaster, Russell Hepple, Nancy W. Glynn, Stephen Kritchevsky, Anne Newman, and Paul Coen, 1 California Pacific Medical Center, San Francisco, California, United States, 2 AdventHealth, Orlando, Florida, United States, 3 University of Florida, Gainsville, Florida, United States, 4 University of Pittsburgh Graduate School of Public Health, Pittsburgh, Pennsylvania, United States, 5 Wake Forest School of Medicine, Winston Salem, North Carolina, United States, 6 University of Pittsburgh, Pittsburgh, Pennsylvania, United States

Discussant: Russell Hepple

Co-Chair: Peggy Cawthon
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