

Increasing Physical Activity through Fitness Technology

It's no surprise to readers of this journal that activity trackers and fitness apps are popular. But do these devices actually help to change behavior and increase physical activity in sedentary adults? What behavioral strategies are used in fitness technologies and do they work? These questions were addressed in a review written by two researchers from Brandeis University in Massachusetts and published in the *Frontiers in Public Health* journal (1).

In findings from several studies, the authors noted that established behavior change techniques were clearly associated with greater increases in physical activity. These techniques included self-regulatory strategies such as short-term goal setting, action planning, and self-monitoring. Other familiar techniques were important as well, such as positively framed messages, feedback and rewards, reminders, social support, and peer coaching. Many of these techniques were found in the popular activity trackers and apps that were utilized in the various studies included in the review. However, some strategies that would be especially important for inactive people were missing from the fitness technologies. In particular, missing strategies included action planning (making a concrete plan that gradually progresses over time), implementation intention (if/then goal setting), environmental restructuring, attitude adjustment, and the identification of perceived barriers.

Although the review provided much detail on behavioral change techniques, accuracy of fitness technologies, and other factors involved in behavior change, of particular interest for this current issue of the *ACSM Health & Fitness Journal* are the sections on improving physical activity for inactive, vulnerable populations. The authors point out that many people who are inactive do not know *how* they can increase their activity. Their lack of knowledge leads to low self-efficacy and potential embarrassment in fitness settings, so they are unlikely to participate. Couple that with what is usually a long list of perceived barriers to being physically active, and the result is sedentariness and inactivity.

Key barriers to physical activity, particularly for older adults and those with lower socioeconomic and educational status, include a perceived lack of ability, social and physical discomfort, lack of motivation, shortness of breath, and environmental factors such as inclement

This is the author's manuscript of the work published as:

Yoke, M. (2019). Research Bites: Increasing physical activity through fitness technology. *Health & Fitness Journal*. 23(5). <https://doi.org/10.1249/FIT.0000000000000501>

weather, unsafe neighborhoods (e.g. higher crime, unleashed dogs, broken sidewalks, poor snow and ice removal), lack of affordable fitness facilities, unpleasant scenery, and unfavorable terrain. Older adults may be apprehensive about activity because they're afraid of falling, in poor health, depressed or embarrassed, and unsure of fitness technologies.

Most activity trackers and fitness apps do not sufficiently address the above factors, if at all. Helping people identify their perceived barriers and providing some problem solving solutions would be a step in the right direction. Additionally, motivational interviewing has been touted as an effective way to increase a person's self-efficacy, but it has not yet been integrated into any fitness technology.

In conclusion, the authors recommend making fitness technology more accessible in both workplace and healthcare settings, as the evidence shows that, even with the above-mentioned limitations, such devices do help shift a person's behavior toward increased physical activity. Special attention must also be paid to the needs of sedentary, inactive, and older populations, and to those having lower socio-economic status. Both manufacturers of fitness devices and health/fitness professionals need to familiarize themselves with potent behavioral change techniques that will help these groups. Chief among these strategies are 1) uncovering the reasons a person is inactive (their perceived barriers), 2) reframing negative attitudes, 3) helping them construct appropriate action plans, and 4) altering problematic environmental factors. We have much to do if we're to make a difference in physical inactivity levels around the world.

Physicians in Canada Increase Exercise Prescriptions after Attending a One-Day EIMC Workshop

Are you familiar with EIM? According to the Exercise Is Medicine website, "Exercise is Medicine® (EIM), a global health initiative managed by the American College of Sports Medicine (ACSM), encourages primary care physicians and other health care providers to include physical activity when designing treatment plans and to refer patients to evidence-based exercise programs and qualified exercise professionals, especially those with the EIM credential." EIMC is the Canadian version of the EIM initiative.

Apparently, some physicians are not entirely comfortable providing patients with information about physical activity and exercise, even though they have been identified as having a key role in motivating inactive patients. Many physicians perceive barriers and impediments to counseling their patients about increasing daily movement. Researchers Fowles

et al (2) aimed to see if attending a one-day EIMC training workshop would result in greater exercise prescription knowledge, confidence, physical activity counseling ability, readiness assessment skills, and changes to practice among 46 Canadian physicians (average age: 49 years).

Physicians in the study were surveyed prior to an EIMC training workshop and then again three months later. Most physicians saw an average of 15 patients per day, and most spent less than 25 minutes with each patient. Findings revealed that physicians' knowledge of physical activity and exercise increased from 17% to 54% after the EIMC training workshop, and that their confidence and self-efficacy around providing physical activity advice increased by 40%. Physicians were also more adept at counseling and assessing a patient's physical activity readiness three months after the training workshop. Initially, only 20% of physicians were providing written exercise prescriptions to patients; at the three month follow-up however, 74% of physicians were providing physical activity and exercise recommendations. Three months after the EIMC workshop, about 50% of physicians were also providing patients with a tangible aid such as a pedometer or educational exercise brochure. Importantly, physicians were more likely to use an EIMC prescription pad and refer patients to qualified exercise professionals after taking the one-day training. In fact, the resource most cited by the physicians was referral to and collaboration with credentialed health/fitness professionals. This study showed a sustained impact on medical practice from a one-day EIMC training workshop. It's worth noting that the study did not attempt to measure whether patients actually participated in more physical activity as a result of their physician's counseling and prescription. Previous studies, however, have indicated that specific recommendations from a person's primary care provider do help to increase physical activity in patients. In order to get more inactive people moving, let's continue to support EIM and work to collaborate with medical caregivers!

The Move on Bikes Program in Mexico City gets People to Move

A recent study published in the *International Journal of Environmental Research and Public Health* (3) found that an open-street program in Mexico City resulted in an extra 71 minutes per week of moderate-to-vigorous physical activity (MVPA) in more than 20,000 users. An open-street program is one in which streets are temporarily closed to motorized vehicles, and walkers, runners, rollerbladers, and cyclists are encouraged to be physically active. Such

programs are offered in many cities around the world, including cities such as San Diego, Atlanta, St. Louis, Los Angeles, and New York in the United States.

The Move on Bikes open-street program in Mexico City involved 55 interconnected streets in middle-high income areas; these streets were closed from 8:00 am to 2:00 pm on the first three Sundays of each month. Along the route, multiple free services, such as first aid, hydration stations, restrooms, bicycle rentals, and bicycle mechanics were available.

In this observational study, data were collected from 8:00 am to 2:00 pm at the Move on Bikes Program each time it was offered, from October 2017 to July 2018. Data included the number of participants, demographic information including physical activity history, and the average number of minutes of MVPA on a typical Sunday per participant. Information was obtained by surveying 679 participants, and by manually counting cyclists, rollerbladers, skateboarders, runners, and walkers for 15 minutes each hour at 16 observation points along the route.

Results showed that approximately 21,812 people attended the Move on Bikes program on an average Sunday, and they accumulated an average of 221 minutes of MVPA on the days they participated. Many participants (29.6%) attended every Sunday. A majority (88.5%) cycled during the program, many for at least 10 kilometers (40.1%). Approximately 61.7% of respondents met WHO guidelines for weekly physical activity just by participating in the Move on Bikes program. Thus, according to WHO guidelines, 70.3% were very active, 14.1% were inactive, and 15.6% were just sufficiently active. However, many participants (~55%) reported that they would have engaged in sedentary or light activities had they not been at the Moves on Bikes program, which means that 47% of them would otherwise have been classed as physically inactive. These findings are relatively consistent with the findings from other cities.

Our take-home message? Open-street programs such as the one analyzed in Mexico City can be a great way to foster increased physical activity, even among those who might choose to be sedentary and physically inactive by default. Health and fitness professionals need to work at the community level to promote and organize more open-street programs, thus providing a fun and social way to move out of the four walls of the fitness facility and help greater numbers of people to get moving.

References:

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