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Senate Special Committee on Aging
September 25, 10:15 am
Dirksen Senate Office Building, Room 562
Hearing: 'Promoting Healthy Aging: Living your Best Life Long into Your Golden Years"

Madam Chair and Committee Members:

I would like to first extend my sincere gratitude for this wonderful opportunity to talk with you today about promoting healthy aging; a topic that is near and dear to me.

I direct the campus-wide Center for Research on Health and Aging at the University of Illinois at Chicago. Our mission is to foster the development of the high-quality research that is translatable to practice to help older adults and families in communities where they live. I am also privileged to have served as the Director of our Midwest Roybal Center for Health Promotion and Translation that has been funded multiple times by the National Institute on Aging and to be a founding director of the Evidence Based Leadership Collaborative in the U.S.

The topics that I would like to cover today include the importance of physical activity, the implications of our Fit & Strong! physical activity/ behavior change program for the maintenance of healthy behaviors, our experience translating Fit & Strong! into practice, and the importance of the Older Americans Act renewal for maintaining and accelerating advances in healthy aging.

Everyone who works in the field of aging knows that physical activity is incredibly important for healthy aging. Dr. Tanzi did an excellent job of describing the benefits of PA on sleep, strength, mobility, mood, cognition and multiple other outcomes for older adults. These benefits apply to older adults with almost all chronic conditions (DHHS, 2018; Bauman et al., 2016). Despite the fact that these benefits are well understood among professionals who care for older adults, levels of engagement in exercise among older adults are still sub-optimal. Currently, 35.8% of seniors are estimated by CDC to engage in recommended levels of aerobic exercise and 16.7 % in resistance training, with levels of engagement being considerably lower in ethnic and minority seniors (Keadle et al., 2016). More recently, we have also become aware of the terrible risks that derive from sedentary behavior. We have new evidence that 27.5 % of older adults are sedentary, a development that is highly correlated with increasing levels of obesity as well (Watson et al., 2016). If inactivity is bad, sedentary behavior in layman's terms is 'awful' and is associated with increased CVD incidence and mortality, all-cause mortality, and incidence of type 2 diabetes (Biswas et al., 2015).

That's the bad news. On a more positive note, a new meta-analysis by researchers in Denmark has found that *any* physical activity, regardless of intensity, was associated with a lower risk of mortality (Ekelund et al., 2019). We are also beginning to understand that exercise that is accomplished in short bouts can be just as effective as spending hours at the gym or on a treadmill (Saint-Maurice et al., 2018).

Both findings are important because the current CDC physical activity guidelines for frequency and duration of physical activity may be quite daunting for many older adults to meet.

Given this context, how can we change the situation and make our later years "golden"? I believe we need to mount a sustained, multi-pronged campaign to combat inactivity. First, we need to mount a major messaging and communications campaign to get the word out to seniors that any activity that they engage in, even if it involves standing up and moving from the TV to the refrigerator in the kitchen, or doing the laundry downstairs, or walking upstairs instead of using an escalator counts and is a huge improvement over sedentary behavior.

Second, we need to understand and address the myriad reasons why older adults are sedentary. My research involves work with older adults who have osteoarthritis (OA) in their lower extremity joints. I began my research career working with 300 homebound older adults in Chicago. I asked them about their chronic health conditions and found, to my surprise, that arthritis was their most common chronic condition *and* the condition that interfered most frequently with their functioning. We followed that study up with a study that examined the relationship between presence of joint impairment and function over time. We measured all of the joints in the body at baseline and disability outcomes for 600 seniors two and four years later. We found that presence of joint impairment in their *lower extremity joints* was the pathway through which disability developed (Dunlop et al., 2002). Multiple studies have since confirmed that pain and stiffness in these large, weight-bearing joints is a major barrier to engagement in activity and leads many persons to be sedentary (Szoeke et al., 2006; Silverwood et al., 2015). This issue matters because we know that many persons with OA also have heart disease and/or diabetes. We also know that if people have heart disease or diabetes and their doctor recommends that they exercise, those who *also have arthritis* fail to follow that recommendation because they fear it will just make their arthritis pain worse (CDC, 2011).

When we discovered the relationship between lower extremity OA and disability, we worked with rheumatologists and physical therapists to develop an intervention to break the chain. We designed Fit & Strong! which is a physical activity/behavior change program for persons with lower extremity OA. The program lasts 90 minutes and meets three times a week for eight weeks. When we designed the program, the existing literature showed the persons with OA had significant aerobic and strength deficits compared to age-matched controls (Minor et al., 1989; Semble et al., 1990; Slemenda et al., 1997). Therefore, the first 60 minutes involve flexibility (warming up stiff joints), sustained aerobic activity, and systematic lower extremity strength training. The final 30 minutes use health education, group problem solving and goal setting to help participants understand what OA is, why it is painful and how they can use a safe and tailored physical activity program to manage it. We ask participants to work with the instructor to develop an individualized plan for follow up maintenance when the program ends. The plan must meet minimum criteria for physical activity dose and frequency but is tailored to their preferences with respect to site, time of day, day of week, type of exercise and use /no use of equipment, work alone or with a buddy, etc. We tested Fit & Strong! for efficacy and effectiveness and found that it improved multiple outcomes at the end of the program (8 weeks) that were maintained at 6 months with substantial effect sizes for physical activity engagement, self-efficacy for physical activity and self-efficacy for adherence to physical activity (Hughes et al., 2004; Hughes et al., 2006). We then examined outcomes over time with a larger sample and found enhanced engagement in physical activity (8 weeks), the end of the program. We continued to assess participants at 6, 12 and 18 months and found that if older adults adhere to exercise good things happen. Specifically, increased physical

activity was accompanied by diminished joint pain, improved joint function, improved mobility and strength (timed performance measures) as well as improved anxiety and depression at the same timepoints (Hughes et al., 2010). Why do these effects and their maintenance over time matter? They matter because impaired lower extremity strength is a major risk factor for falls and impaired mobility is both a risk factor for falls and an independent risk factor for mortality (Studenski et al., 2011; Pahor et al., 2014)

Fit & Strong! was originally targeted to persons with painful OA which is now a known barrier to exercise participation. Another important reason why seniors do not exercise relates to sensory deficits. We know that persons with vision and hearing loss also engage in lower levels of physical activity (Gispen et al., 2014; Loprinzi et al., 2013; Loprinzi, 2013; Nguyen et al., 2015; Ong et al., 2018). We recently piloted an adapted version of Fit & Strong! with persons with low or no vision (DeMott & Hughes, 2018). We first conducted focus groups with potential users and found that they experienced substantial challenges trying to access physical activity programs in the community. We have also tested a Hispanic version of Fit & Strong! and developed a new version (Fit & Strong! Plus) that combines physical activity with health education for healthy eating and weight loss (Der Ananian et al., 2017; Fitzgibbon et al., 2018; Mears, et al., 2018; Vergis et al., 2018). Our trial of Fit & Strong! Plus version found that participants who were overweight or obese and also had OA lost a modest amount of weight (2.3%) at 8 weeks that was maintained at 6 months. We also found that this modest amount of weight loss was accompanied by clinically and statistically significant improvements in lower extremity joint pain and function (Hughes et al., 2018).

These consistent and strong findings from the Fit & Strong! trials indicate that persons with OA clearly benefit from the program and beg the question of its possible impact on use of total joint replacement (TJR) surgery in this population in the future. We currently spend $72.5 billion for total hip and knee replacement surgery in the U.S (HCUP, 2016). If we could delay the need for the surgery and/or help persons who have had the procedures attain maximum function in the community we could potentially keep millions of persons with OA healthy and active into their golden years and we might see a spillover effect on common OA comorbidities like heart disease and diabetes.

We are currently actively engaged in translating the Fit & Strong! into communities. The program Is now being offered by more than 300 instructors in 32 states plus the District of Columbia. How did that happen? We, along with several other high-quality evidence based physical activity programs like A Matter of Balance and EnhanceFitness, benefited from Congressional funding for arthritis management programs at CDC and from Title III D funding in the Older Americans Act for falls prevention programs. These funds are the only sources in the U.S. that currently exist that help providers in the field to mount these programs. Therefore, these funding sources are *vital* and need to be continued with *increased funding levels going into the future if possible*. Currently, physical activity programs have to meet standards for inclusion into care management and falls prevention programs. I strongly recommend, given the fundamental power of physical activity programs to improve healthy aging, that they be assigned their own additional funding stream in the future.

What else do we need? We need to make exercise easy, we need to make engagement in physical activity a cultural norm and we need to start early. We need to use a life-course perspective wherein engagement in physical activity is encouraged at every stage of life starting with toddlers; this effort involves a culture shift that is starting to happen and should be supported every step of the way.

Currently, NIA is funding researchers to develop and test excellent programs. We need the capacity to bring these programs to scale more rapidly. We need a clearinghouse that will set standards for safe and effective programs and that will provide assistance to investigators who are struggling to identify ways of scaling up their programs. We need to embrace and commit to the growth of evidence-based programs that are proven, translated, replicable, use limited resources, and have measurable health outcomes.

We need to engage the health care system in the battle. Medicare Advantage plans should be strongly encouraged if not required to reimburse community-based organizations that provide evidence-based programs. We should use the Medicare wellness visit to ask about physical activity engagement and use the electronic health record to link patients to community providers. The National Recreation and Parks Association is already piloting this effort with CDC funding in Colorado and Louisiana (NRPA, 2019). Physical activity should be considered to be a fifth vital sign that should be monitored in regular checkups (Golightly et al., 2017). Congress should support efforts of the Evidence Based Leadership Collaborative and others to disseminate information on program availability using web-based program locators that can be easily accessed by physician assistants, patients and/or their family caregivers.

To summarize, physical activity matters and is essential for healthy aging; we therefore need to make it a *top national priority for older adults*. The best way to do this is to build on and expand our network of proven programs and increase access to them. For this reason, I urge you strongly to support the re-authorization the Older Americans Act and increase funding for Title III D with possible new set aside funds for evidence based physical activity programs in the future. I know that Senators Collins and Casey are strong supporters of the Senate renewal legislation and want to thank you both for your outstanding leadership on this issue.

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