



## **Program: Fit & Strong!**

### **History:**

Fit & Strong! was developed by researchers and exercise experts at the University of Illinois at Chicago who found in previous work that osteoarthritis (OA) is the leading cause of disability among older adults. People who have OA can have painful lower extremity joints; as a result, they often become sedentary and de-conditioned. To reverse this trend, Fit & Strong! provides a tailored multi-component exercise program that is coupled with health education for disease management for this population. Fit & Strong! is currently offered to thousands of older adults by providers in 27 states.

Fit & Strong! helps participants to: 1) gain a clear understanding of what OA is and how an exercise program that is tailored to their needs can help them manage arthritis symptoms; 2) learn to safely and effectively perform exercises that gradually increase in frequency, duration, and intensity over time; and 3) develop a tailored, multiple component physical activity routine that is sustainable after the program ends. Fit & Strong! has been rigorously evaluated in an RCT with 200+ participants, in a long-term effectiveness trial, and in a dissemination study. Significant findings are presented in the Program Outcomes Section. The program is licensed by the University of Illinois at Chicago and is based in the University's Center for Research on Health and Aging where staff work with providers to disseminate the program across the United States, and more recently, globally.

### **Program Description:**

Fit & Strong! meets three times per week for eight weeks. Each session lasts for 90 minutes. The first 60 minutes are devoted to exercise (flexibility, aerobic, and progressive lower extremity strength training), and the last 30 minutes are devoted to a structured health education/group problem-solving curriculum that motivates participants to use physical activity to manage their arthritis symptoms. In week six participants meet with the instructor to negotiate individualized exercise adherence contracts that foster ongoing maintenance of a balanced physical activity routine of their choice after the 8-week program ends.

Fit & Strong! classes are appropriate for older adults who have lower-extremity joint pain and stiffness related to OA or other lower extremity mobility/balance challenges. Classes are led by either nationally certified exercise instructors or by persons who have served as successful instructors for other group evidence-based health promotion programs.

### **Program Outcomes:**

A randomized controlled trial (1) compared the effects of participation in Fit & Strong! (N = 115) to a control group (N = 110) at baseline, two, six, and 12 months following randomization. Program participants showed statistically significant improvements relative to the control group, at two months (end of formal program) in:

- Confidence in their ability to exercise safely with arthritis (78% increase)
- Participation in exercise (86% increase) and
- Lower extremity stiffness (33% increase)

These benefits were maintained at *six months*, at which time participants experienced the additional significant benefits of increased confidence in their ability to adhere to exercise over time, a significant decrease in *lower extremity joint pain*, and a marginally significant increase in their confidence in their ability to *manage arthritis pain* (2).

At *12 months*, significant benefits were maintained on confidence to exercise safely with arthritis and continued exercise participation that were accompanied by marginally significant reductions in lower extremity stiffness and *pain*.

Effect sizes for the efficacy and physical activity engagement outcomes were strong at all time points.

A large effectiveness trial (3) with 534 participants also found a significant increase in physical activity over baseline levels at two months that was *maintained at 18 months*, and accompanied by maintenance of significant improvements over the same time period in:

- Lower extremity joint stiffness, *pain*, and function
- Lower extremity strength (timed sit-stand test)
- *Mobility* (6-minute distance walk)
- *Anxiety and depression*

Findings from a comparative effectiveness trial evaluating a new physical activity plus weight-management version of Fit & Strong! are now available, demonstrating benefits of the new program on weight and joint pain and function outcomes at two months that were maintained at six months (4). In addition to the weight-management version, Hispanic, and low-vision versions of Fit & Strong! have also been tested. The Hispanic version showed improvements in lower extremity strength and lower extremity pain, stiffness, and function at two months that were maintained at six months (5).

#### **Program References:**

1. Hughes, S.L., Seymour, R.B., Campbell, R., Pollak, N., Huber, G., Sharma, L. (2004). Impact of the Fit and Strong! intervention on older adults with osteoarthritis. *The Gerontologist*, 44(2), 217-228.)
2. Hughes SL, Seymour RB, Campbell RT, Huber G, Pollak N, Sharma L, Desai P. (2006) Long-term impact of Fit and Strong! on older adults with osteoarthritis. *Gerontologist*. 46(6):801-814.
3. Hughes SL, Seymour RB, Campbell RT, Desai P, Huber G, Chang HJ. (2010) Fit and Strong!: bolstering maintenance of physical activity among older adults with lower-extremity osteoarthritis. *American Journal of Health Behavior*. 34(6):750-63.
4. Hughes, S. L., Tussing-Humphreys, L., Schiffer, L., Smith-Ray, R., Marquez, D. X., DeMott, A. D., ... & Fitzgibbon, M. L. (2018). Fit & Strong! Plus Trial Outcomes for Obese Older Adults with Osteoarthritis. *The Gerontologist*.
5. Der Ananian, C., Smith-Ray, R., Meacham, B., Shah, A., & Hughes, S. (2017). Translation of fit & strong! for use by Hispanics with arthritis: A feasibility trial of *En Forma y Fuerte!*. *Journal of aging and physical activity*, 25(4), 628-638.

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