



Physical Fitness Screening: Is it time for your annual evaluation?

by Vanessa J. Everett, PT, DPT

This clinical case commentary was part of content for the July 2022 Journal Club. These case studies are intended to demystify the more formal statistics and format of a peer-reviewed article and translate key concepts into clinically usable information. Join us for Journal Club on the third Tuesdays of January, March, May, July, September, and November at 8 pm ET to discuss current concepts with a wide range of peers.

Case study presentation based on the research article from Journal of Geriatric Physical Therapy: Puthoff, M. Participants' Perceptions and the Implementation of a Physical Fitness Screen for Aging Adults. J Geriatr Phys Ther. 2021;44(1):E1-E8.

An ageing adult is referred to you for an annual physical fitness screen. What tests would you choose to perform? How much time would you need to complete it? The following study compares the results of 2 ageing adults, on different ends of the age spectrum, who participated in a physical fitness evaluation using the Adult Functional Independence Test (AFIT).

Participant 1

Ms. Johnson is a 52-year-old female referred for an executive wellness examination as part of a comprehensive wellness program offered annually by her employer. Ms. Johnson currently works full-time in an administrative position and spends most of her time sitting at a computer. She lives at home with her husband and 2 dogs, which she takes on daily 2-mile walks. She does not participate in resistance or balance training.

Ms. Johnson's medical history includes osteoarthritis. She reports occasional pain in bilateral ankles, knees, and lumbar spine for which she is undergoing further testing. Patient Health Questionnaire (PHQ-2) was positive for depression; she did not present with suicidal ideations.

She is independent with all ADL's and IADL's and notes

no restriction in mobility. She has reported 1 fall in the last year that did not result in injury or require medical attention. She does not feel unsteady with standing or walking. She enjoyed cycling in the past but has been unable to participate in the last 2 years due to work and family demands. Her stated health goals are to improve her overall wellness and aerobic endurance.

Participant 2

Ms. Smith is a 76-year-old female who was referred for a physical fitness and balance assessment from her primary care physician. Ms. Smith initiated this referral due to her concerns with her balance, gait, and overall endurance. Her stated goal is to improve her overall walking distance and steadiness to improve her confidence and ability to go on vacations with her family.

Medical History includes hypertension, hypercholesterolemia, urge incontinence, hysterectomy. Patient Health Questionnaire (PHQ-2) was positive for depression; she did not present with suicidal ideations. She is not currently experiencing pain but has a history of left knee pain which she attributes to arthritis.



Ms. Smith is retired widow who lives in a one-story home, with 3 steps to enter and handrails on both sides. She is independent with all ADLs, driving, but receives some assistance with grocery shopping and yardwork. Ms. Smith does not require a walking aid and states that she ventures outside her home 4 times per week on average. She reports 1 fall to the ground or a lower level in the past year that did not require medical attention. Ms. Smith reports 4 instances of near falls that were either a slip, trip, or loss of balance but she did not hit the floor. She does not participate in regular aerobic, resistance, or balance training.

Assessment

Participant 1

Ms. Johnson's increased physical activity, faster gait speed, and increased confidence in her balance correlated to her higher performance on multiple testing areas. However, the fitness assessment revealed deficits in the areas of dynamic balance and muscle strength which are highlighted in Table 2. The deficit in dynamic balance correlated with her fall history. Her identified hand grip weakness was consistent with the lack of resistance training in her routine. Ms. Johnson reported an overall positive perception of the fitness assessment and agreed that she would be willing to pay for it as part of an annual screen. The fitness assessment session was completed in approximately 42 minutes. However, she was not provided with the formal results or instruction for interventions. She was scheduled for a follow-up visit to formally review the results and provide guidance on her exercise routine.

At her follow-up visit Ms. Johnson was given education on how to incorporate exercises to target the identified weaknesses and was empowered to age intentionally. Utilizing motivational interviewing techniques, she was encouraged to increase her aerobic exercise minutes and add resistance training to her exercise routine. Techniques for incorporating balance exercises were discussed. In addition, because of her peri-menopausal status, she was encouraged to add impact exercises for bone health. The fitness assessment effectively identified Ms. Johnson's current deficits and served as a guide for the physical therapist to develop a program to help Ms. Johnson prevent future problems.

Participant 2

The physical fitness assessment for Ms. Smith identified deficits in the areas of flexibility, static and dynamic balance, aerobic endurance, and strength as compared to her age-related norms. The results were consistent with her history of falls, lack of balance confidence in her balance, and low physical activity participation. Similarly, Ms. Smith reported an overall positive perception of the Adult Functional Independence Test (AFIT) and expressed that she would be willing to pay for this annual physical fitness screen. The session for Ms. Smith was completed in approximately 60 minutes without providing specific results or interventions.

The fitness assessment objectively identified areas that fell below age-related norms that required improvement (Table II). Deficits in static and dynamic balance and aerobic endurance correlate to below community-ambulator gait speed. The AFIT results indicated a need for a focused and structured program that included all areas of deficit. The patient underwent 5 visits to physical therapy that included interventions for balance and strength. The physical therapist assisted her in initiating a walking program and connected her to a community exercise-based program to prevent further decline and future falls.

Discussion

The American Physical Therapy Association (APTA) places emphasis on physical therapists as primary care providers, with the annual physical therapy evaluation being one of these initiatives. This position statement aligns with the mission of the APTA to "improve the health of society." Therefore, there is support and focus on making physical therapists the providers of choice for annual physical fitness evaluations, especially with our aging population.^{1,2} Functional fitness represents the physical capacity that is needed to undertake normal daily activities, independently, without fatigue.³ Therefore, quantifying an individual's level of physical fitness is important to identify potential deficits in the areas of posture, flexibility, balance, mobility, endurance, and strength. Identifying deficits in these areas during an annual physical fitness screen allows both the individual and clinician to col-

Table 1: Participant Subjective Information

Baseline Information	Score	
	Ms. Johnson	Ms. Smith
Age (years)	52	76
BMI	21.0	30.9
Resting HR (bpm)	62	74
Resting BP (mmHg)	110/72	146/84
Resting SpO2 (%)	99%	96%
Resting RR (breath/min)	12	14
Physical Activity Vital Sign (minutes)	175	40
Activities-specific Balance Confidence (ABC) Scale	95% Confidence	66% Confidence
STEADI	Yes – (Falls)	Yes – (Falls & Worry)

Table 2: Physical Fitness Screen (adapted from AFIT: Adult Functional Independence Test ®) Results*

	Test	Score	
		Ms. Johnson	Ms. Smith
Posture			
	Wall to Occiput	0 cm	3 cm
	Rib to Pelvis	3 fingers	3 fingers
Flexibility			
	Back scratch Test	+2 inches	-6 inches
	Ankle Dorsiflexion (degrees)	R: 8 L: 11	R: 6 L: 7
Balance			
	Vestibular Hypofunction	No symptoms	Dizzy at 8 seconds
		No symptoms	No symptoms
	One Leg Stand Test (s)	L: 30 R: 27	L: 3 R: 9
	Tandem Walk – eyes open	0 errors	2 errors
	Tandem Walk – eyes closed	2 steps	Unable
Mobility			
	Timed Up and Go	6.23 sec	13.8 sec
	10M Gait Speed	1.80 m/s	0.96 m/s
Endurance			
	2 Minute Step Test:	94 steps	72 steps
Strength			
	Grip Dynamometer (kgs)	R: 11.3 L: 6.8	R: 10.0 L: 7.7
	Shoulder External Rotation (lbs)	R: 21.5 L: 19.5	R: 16 L: 13
	Plantar Flexion	R: 25 L: 25	R: 17 L: 13
	30s Sit to Stand (reps)	17	9
	Plank(s)	143	35
	Back Extension: Prone hold (s)	32	16
	Completion Time:	42.30 min/sec	56.20 min/sec

*Adapted from, "The AFIT (Adult Functional Independence Test) for Optimal Aging" by Carole B. Lewis, PT, DPT, GCS, GTCCS, MSG, MPA, PhD, FSOAE, FAPTA, CTR, TRC & Great Seminars Online

laborate and form a plan to maintain the highest level of health and wellness possible.

The Adult Functional Independence Test (AFIT) is an option that offers a comprehensive and feasible screening option for annual physical fitness screens performed by physical therapists.⁴ Ageing adults who have participated in a physical fitness screen using the AFIT found value, benefit, and usefulness in completing this screen with a physical therapist.⁴ The Academy of Geriatric Physical Therapy (APTA Geriatrics) has been working with the APTA to develop an annual physical therapy visit that offers another option for physical fitness screening. This form is available on the APTA and APTA Geriatrics websites with additional templates including an Intake Form and Report Card.⁵

When implementing a physical fitness assessment, consideration should be given to the amount of time for completion. A participant similar to Ms. Smith will likely require increased time for instruction, test completion, review of results, and intervention. Ms. Smith required increased time for motivational support for change due to lack of awareness of her deficits. Consideration should also be given to the equipment and space needed to complete the assessment. These 2 individuals were tested in 5.5 x 6.5-m space which did provide enough room for all testing. The use of the dynamometers was effective and required little room to transport and store. The age of the individual should be considered in test selection. Although the individual tests that make up the AFIT were effective in detecting a range of deficits in both individuals, many tests did not include age-related norms for individuals under the age of 60, making it difficult to identify deficits in those areas. This included 4 assessments for Ms. Johnson.

Overall, physical therapists should consider offering an annual comprehensive physical fitness screen to their ageing adult population. When selecting the testing for the physical screening, consideration should be given to the feasibility of the testing and the individual's personal factors that may impact their perception of the testing. It is also vital to develop a plan for follow-up to assist the individual with integrating the recommendations made after the physical fitness screening. This will help them implement the changes and keep them on the path to improved functional fitness.

References

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therapist in the home health setting for over seven years, diagnosing movement dysfunction and developing interventions to improve strength, endurance, and balance. Currently, she practices clinically by performing fitness assessments as part of annual wellness exams for select clients in the hospital system and by practicing in the general acute hospital setting. Her research has focused primarily on the management of individuals with amputations, the impact of balance impairments in individuals with various orthopedic conditions, and in health promotion and exercise for older adults to reduce hospital admissions.