

Promoting Older Adult Physical Activity Throughout Care Transitions Using an Interprofessional Approach

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ABSTRACT

The nurse practitioner plays a key role in monitoring and improving physical activity and function of older adults. Physical activity is an essential component of care management for all older adults, even those who are frail with multimorbidities. All physical activity, no matter how small, has the potential to impact functional independence and quality of life. Partnering with the older adult and caregivers along with interprofessional providers, such as a physical therapist or occupational therapist and community-based resources, facilitates the development of successful goals and plans and the implementation of activities to promote physical activity across the continuum of care.

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Functional capacity and resilience are keys to successful aging, health, quality of life, and independence. These attributes are especially important because older adults often have multimorbidities and experience acute medical conditions. Regardless of practice settings, nurse practitioners (NPs) will be confronted with this population because of the growing numbers of older adults.

Getting and keeping older adults active, physically fit, and functioning at their highest capacity is a goal well suited to the NP role. As people live longer and the number of “boomers” reaching age 65 grows, there is a significant need to include physical activity in interactions and management plans for all older adults. Many chronic conditions share sedentary lifestyle as a contributing cause. Regular physical activity can positively impact a variety of health conditions (ie, coronary artery disease, hypertension, peripheral vascular disease, diabetes mellitus, obesity, elevated cholesterol, osteoporosis, osteoarthritis, and chronic obstructive pulmonary disease), psychological health, and well-being.¹ Physical activity also is known to prevent and delay cognitive decline.² Because no one provider can meet all the needs of every individual,

especially for older adults, collaborating with an interprofessional team and community resources is critical. The older adult and caregivers should be integral members of the team.

IMPACT OF AGING CHANGES ON FUNCTION

Aging changes can impact functional capacity to a point, but there is continuing debate³ as to the degree this limits older adults if they were physically active throughout their life. Common aging changes that affect physical activity include decreased visual acuity (despite corrective lens), diminished hearing, joint pain, decreased joint range of motion, muscle atrophy, and occasionally edema. A synopsis of potential barriers to physical activity and sample exploratory questions are provided in [Supplementary Table 1](#) (available online at www.npjjournal.org).

As people age, the need for physical activity becomes more urgent to reduce the potential loss of strength, flexibility, endurance, and balance. Functional capacity prevents injuries and falls, isolation, dependence, and depression and determines the ability to perform activities that provide quality of life. Transition to an institutional setting or the development or progression of a medical problem

can result in a high risk for functional decline and deconditioning.⁴

RECOMMENDATIONS AND EVIDENCE-BASED NATIONAL RESOURCES

Current physical activity recommendations for older adults are 150 minutes per week of moderate-intensity aerobic activity or 75 minutes of vigorous aerobic activity. Thirty minutes of sustained activity is the goal.⁵ For those with less stamina, shorter periods of at least a 10-minute duration several times per day can achieve the overall 30-minute goal.⁶ The recommendations also include at least 2 days per week of muscle-strengthening exercises of all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms). Balance and coordination activities on 3 or more days per week should be incorporated to prevent falls. A Choosing Wisely provider recommendation states, “Don’t prescribe under-dosed strength training for older adults, instead match frequency, intensity, and duration of exercise to the individual’s abilities and goals.”^{7(p1)} This concept is important because a base of strength and balance can increase the ability of a person to move safely at faster speeds and for longer distances. However, less than 12% of older adults meet aerobic and muscle-strengthening physical activity recommendations.⁸

Older adults should start at a level of physical activity that is appropriate for their current level of fitness and then gradually increase their physical activity. Screening older adults for the risk of adverse events before participation is recommended, but the concern is to not have this be a barrier to physical activity.⁶ A screening tool designed for older adults called the EASY tool is based on the tools described in the Table.^{6,9} There are significant benefits for older adults even at physical activity levels well below the recommended guidelines.^{6,10} With 94.4% of older adults seeing a health care provider within the past year,⁸ these visits offer an excellent opportunity for NPs to address the benefits of physical activity.

Berra et al¹¹ suggest making physical activity a vital sign to ensure adequate counseling. Only 34% of all adults report being counseled about physical activity at their last visit.¹² The American Medical Association and the American Colleges of Sports Medicine¹³

initiated a program, Exercise is Medicine, to encourage making physical activity a standard part of any health promotion and treatment plan. Older adults are encouraged to find the type of activity that best fits their interests and abilities. Physical activity must be personally meaningful, fun, and something older adults can successfully do and incorporate into their everyday life.¹ The Department of Health and Human Services developed a guide, Be Active Your Way, which includes a framework to start the discussion about physical activity.⁵ The National Institute on Aging also promotes physical activity for older adults with their Exercise & Physical Activity: Your Everyday Guide,¹⁴ Go4life,¹⁵ and additional resources (Table).

ACUTE CARE SETTING AND NEED FOR MOBILIZATION

Functional decline is a common complication of hospitalization, even for those who had good baseline function, with the rate of decline increasing with age.^{16,17} Several misconceptions facilitate functional decline and deconditioning.¹⁸ The older adult and their families may have the perception that a person needs to rest if he or she is ill. Families and health care providers may feel older adults should not do activities out of concern for safety or health. Caregivers may also believe it is quicker if a task is done without involving the older adult’s participation.

Many hospitals recognize the importance of addressing physical mobility misconceptions; there are hospital programs and initiatives available as exemplars and resources.^{16,18,19} The involvement of an interprofessional team should begin on day 1 of hospitalization. The need for mobilization needs to be weighed against the risk of falls. The staff and institutional fear of falls should not be the primary reason for inadequate patient mobility. The slogan to prevent falls should be changed from “Do not get up alone” to “Do not get up alone, but do get up.”

COMMON CHALLENGES TO PHYSICAL ACTIVITY IN OLDER ADULTS

Ageism

Ageism is often a barrier to physical activity. This bias is present in health care professionals, older adults, and their families. Negative stereotypes of aging can influence what is considered possible in older age; the

Table. Resources for Physical Activity and Fall Prevention for Older Adults

Resources	Where to Find
A Matter of Balance	http://www.mainehealth.org/mob
Arthritis Foundation Exercise Program and Walk with Ease	http://www.arthritis.org/living-with-arthritis/
Arthritis Foundation Tai Chi Program	http://www.arthritis.org/resources/community-programs/tai-chi/
Be Active Your Way	http://www.health.gov/paguidelines/guidelines/activeguide.aspx
EASY tool (Assesses readiness for physical activity)	http://easyforyou.info/
Exercise & Physical Activity: Your Everyday Guide from the National Institute on Aging (Available in English and Spanish)	https://www.nia.nih.gov/sites/default/files/exercise_guide.pdf
Exercise is Medicine	http://www.exerciseismedicine.org/
Falls Prevention: Lifestyle-Integrated Functional Exercise (LiFE)	http://sydney.edu.au/health-sciences/staff/docs/lindy_clemson/LiFE_participant_manual_book_1.pdf
Falls Prevention: Otago	https://www.med.unc.edu/aging/cgec/exercise-program
Fit and Strong	http://www.fitandstrong.org/
Functional Focused Care	http://www.functionfocusedcare.org
Geri-Fit Strength Training Workout	http://www.gerifit.com
Go4Life (DVD and exercise guide) Available in English and Spanish	www.nia.nih.gov/Go4Life https://go4life.nia.nih.gov/exercise-guide https://www.nia.nih.gov/health/.../go4life-dvd
Healthy Moves for Aging Well	https://www.ncoa.org/resources/program-summary-healthy-moves-for-aging-well/
National Falls Prevention Resource Center	http://www.ncoa.org/center-for-healthy-aging/falls-resource-center/
NIHSeniorHealth: Exercise: Benefits of Exercise - Health Benefits	http://nihseniorhealth.gov/exercise/toc.html
Stay Active and Independent for Life	http://livingwell.doh.wa.gov
Stepping ON	http://www.ncoa.org/improve-health/center-for-healthy-aging/stepping-on.html
Stopping Elderly Accidents, Deaths & Injuries (STEADI) website	http://www.cdc.gov/steady
Tai Chi: Moving for Better Balance	http://www.ncoa.org/improve-health/center-for-healthy-aging/tai-chi-moving-for-better.html

degree to which an older adult is active; the types of activities chosen; and the availability of supportive products, environments, and services.²⁰ Older adults, their families, and health care providers may also doubt their ability to be active and if it is safe or socially acceptable or have the belief that physical activity should decline as a person ages. Schwengel et al¹ discuss responses to common questions about physical activity for older adults.

Motivation to Be More Active

Older adults may see physical activity recommendations as overwhelming. Using the philosophy that any activity is good and starting slowly and gradually building over time can be reassuring. Motivational interviewing (MI) is less focused on *fixing* or *persuading* individuals to change their behavior, but rather seeks understanding of behaviors and problem-solving in a collaborative way.²¹ Asking open-ended

questions, providing affirmation, reflective listening, and summarizing are needed to help *motivate* older adults to change current behaviors that may put them at risk for decline or potential harm. There are 4 generally accepted techniques for MI: 1) engaging, 2) focusing, 3) evoking, and 4) planning. Engaging an individual builds a relational foundation, rapport, and mutual respect and creates trust. Focusing techniques provide strategic direction by identifying a goal. Evoking strategies focus on an individual's reason and/or readiness for change. Planning focuses on the process that will facilitate and sustain change. The key points of MI are to resist the urge to persuade an individual to change behavior, to make an effort to understand an individual's current motivation, to genuinely listen, and to empower individuals to make the changes they seek. Examples of strategic questions/statements for MI are provided in [Supplementary Table 2](#) (available online at <http://www.npjjournal.org>).

Fall Risk and Fear of Falling

The fear of falling and the risk for injury from a fall are realistic and common concerns of older adults. Rather than restrict physical activity that results in deconditioning and functional decline, a better approach is addressing the causes for falls. A thorough assessment after a near fall or fall is important because it provides information about future risk and opportunity to develop an individualized fall prevention plan. A previous fall is the best predictor of future falls.²² The Stopping Elderly Accidents, Death and Injuries (STEADI) algorithm for fall risk ([Figure](#)) is a useful tool for an NP to identify and rate the fall risk. Reduction of fall risks is often best addressed with a team. Physical therapists (PTs) have the expertise in in-depth fall assessments and treatment. They provide appropriately intensive and comprehensive functional training across multiple domains (ie, strength, balance, coordination, and endurance). When the patient is ready, evidence-based community programs ([Table](#)), such as Fit and Strong, A Matter of Balance, or Silver Sneakers, can be added to the treatment plan by the NP and/or PT. The National Falls Prevention Resources has a list of all evidence-based fall prevention programs.

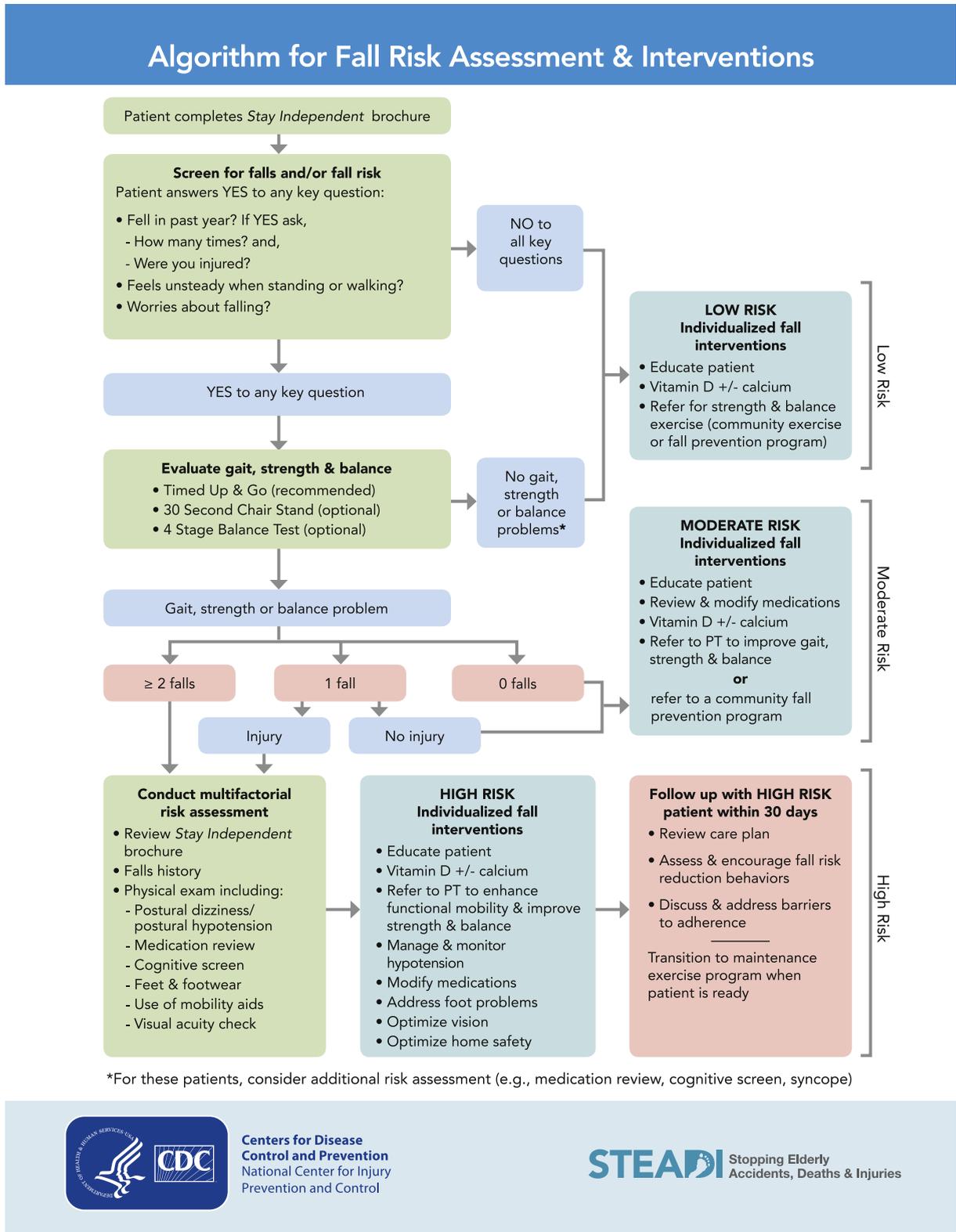
AN APPROACH TO REDUCE FUNCTIONAL DECLINE IN ALL SETTINGS

Resnick and Boltz¹⁸ developed a functional focused care (FFC) approach that can be used across settings. This 4-step approach focuses on changing the perceptions and approaches that encourage deconditioning. Step 1 is making environmental (eg, markers in the hall for distance walked and appropriate height of chairs and toilets) and policy changes (eg, prescribing physical activity, holistic approaches to pain management, medications with low sedating effects, clustering diagnostic testing, and care delivery that promotes optimal fluid and food intake). Step 2 is education for providers, older adults, and families on the benefits of physical activity and how to support even small functional activities of daily living (ADLs) to reduce the risk of functional decline. Step 3 is developing specific activity goals for the older adult, communicating, and involving the family and other team members in the development and implementation of the goals. This step in the FFC approach is an important opportunity to involve other team members in the development and implementation of goals. Step 4 is developing and motivating champions who support the older adult and staff to implement this approach. This should include the nurse's aide, older adult, family, and other staff and providers. Resnick and Boltz¹⁸ developed a website, www.functionfocusedcare.org, that includes information and short videos for providers, older adults, and families/caregivers on why and how to implement this approach.

FUNCTIONAL STATUS AND IMPACT ON DISCHARGE PLANNING

An important part of the FFC was the development of activity goals for the older adult. There must first be an assessment of the person's functional status. There are multiple assessment tools available (see [Supplementary Table 3](#), available online at <http://www.npjjournal.org>), and partnering with other providers such as the PT and occupational therapist (OT) is essential. A functional assessment performed at regular intervals provides a baseline and notes gradual changes. A cognitive assessment may be indicated, given the risk for delirium and worsening

Figure. Fall Risk Algorithm.



of cognitive ability from illness. This information, along with a discussion of resources, guides the decision for an appropriate discharge setting and follow-up care. Transitions of care are high-risk times for miscommunication and errors. The involvement and continuing communication with all team members are essential to minimize poor outcomes. Transitions are also opportunities for change. Taking advantage of a transition can motivate people to make changes to develop healthier lifestyle behaviors, increase physical activity, and improve functional capacity. Often, people are more willing to change when they recognize their current strategies are not effective.

CASE APPLICATION

The case application follows Ms. Green, an older woman with multimorbidities, from her transition from hospital to home. It illustrates the role of the NP in the care transition and their relationship with other health care providers in promoting and motivating older adults to improve or maintain their functional capacity through physical activity.

Ms. Green is an 80-year-old woman who was admitted to the hospital for pneumonia. She has a history of hypertension, dyslipidemia, osteoporosis, and osteoarthritis in both knees. She lives alone in a 2-story home; the bathroom with a shower and the bedroom are on the first floor, and the laundry is in the basement. She had a fall 2 months ago with minor bruises. She attends her local senior center 2 times a week for social activities. She does not drive, so a friend provides transportation. She uses a straight cane for walking and does not have additional durable medical equipment.

After a 4-day stay, Ms. Green's medical status stabilized, and plans are underway for discharge. Her son came to town for his mother's hospitalization and to assist with discharge transition. Ms. Green will be discharged home with additional support from a visiting nurse based on her medical stability; her desire to return home; her ability to independently transfer, toilet, and ambulate with her cane short distances; and the presence of family. She has Medicare coverage and is scheduled to see her primary care NP 1 week after discharge.

Two days after discharge, the case manager calls to remind Ms. Green about her appointment with her NP and asks if there are any immediate problems after discharge. Ms. Green says she still feels weak and indicated that the visiting nurse did see her and that her son has been staying with her until she sees her NP. Once her son leaves, her friend who lives next door is available to help.

At the 1-week postdischarge visit, the NP reviews Ms. Green's current health and functional status and explores her goals of care. Ms. Green desires to remain in her home. She is concerned that she cannot return to the senior center yet because she is still feeling weak and is afraid of falling. The NP performs the physical function assessments of leg strength and balance and assesses for orthostatic hypotension. Ms. Green has the following results: the 30-second chair stand test = 8 (normal ≥ 12), 2) the 4-stage balance test (tandem stand) = 4 seconds (normal ≥ 10), and 3) Timed Up & Go = 14 seconds with steadying on walls, slow tentative pace (normal ≤ 12). She is negative for orthostatic hypotension.

The NP also performs a screening test for cognitive dysfunction using the Montreal Cognitive Assessment.²³ Her Montreal Cognitive Assessment result is 27 (normal ≥ 26).

Taken together, the tests indicate that although Ms. Green's cognitive function is intact, she is at moderate to high risk for falling. She states she did not tell anyone about the fall 2 months ago because she was afraid her family would feel she could not stay in her home. The NP observes that Ms. Green looks frail and walks with a slow tentative pace and steadies herself on walls and furniture in the office, despite having a cane. A concern is that Ms. Green may have undetected deficits and, given her fear of falling, may have experienced further deconditioning upon returning home. The NP uses the evidence-based Algorithm for Fall Risk Assessment & Interventions (see http://www.cdc.gov/steady/pdf/algorithm_2015-04-1.pdf) from the STEADI website (<http://www.cdc.gov/steady>).²⁴ This website also provides comprehensive educational material for the consumer and provider and instructions and short videos on how to administer the fall assessment evaluations mentioned previously. The NP provides

Ms. Green and her son with a copy of the STEADI “Check for Safety: A Home Fall Prevention Checklist for Older Adults” to find and fix home fall hazards. The NP arranges for a referral to home health PT and OT to further assess her fall risk and ability to perform ADLs, respectively, and to treat deficits in function and identify the need for durable medical equipment to facilitate function and safe mobility. The NP also plans to follow up with the home health agency for any additional needs for assistance with meals, shopping, laundry, and housecleaning. The NP will see Ms. Green again in 3 weeks to evaluate her progress and to discuss Ms. Green’s plans for continued physical activity.

Ms. Green attends therapy 2 to 3 times per week over 4 weeks for a total of 10 sessions of physical therapy and 6 sessions of occupational therapy. The intervention consists of exercises to specifically target her deficits in strength, balance and coordination, and endurance domains. Ms. Green performs functional strengthening and balance/coordination exercises from the evidence-based Otago falls prevention program and builds up to walking continuously for at least 10 minutes at a time.²⁵ Upon therapist assessment, Ms. Green now has a shower seat, grab bars, and reacher to perform ADLs independently and a rollator walker with a basket and seat to assist with safe and independent community mobility.

The NP has been in communication with the PT and OT along the way for progress updates, and the plan is to transition her to community-based exercise after she meets her therapy goals. At the follow-up visit with Ms. Green, the NP repeats the physical function assessments of leg strength and balance and assesses for orthostatic hypotension. Ms. Green’s scores are now within normal ranges, and the NP discusses the plan for transition from home health to community-based exercise. The senior center offers a Silver Sneakers program in which Ms. Green plans to participate. Ms. Green will also continue her home exercise program consisting of Otago exercises and progressive ambulation.

IMPROVING FUNCTION THROUGH PHYSICAL ACTIVITY

There are several case study issues related to functional ability. The goal of care is to get Ms. Green as active and independent as possible.

Concerns are her fall risk and fear of falling, deconditioning from the hospital stay, and the ability to stay in her home and actively participate in her social activities. Involving Ms. Green and her support system in the development of a plan to address these concerns is essential. Motivating persons to change their habits and to become more active can be challenging, but the reward is significant. The NP has multiple evidence-based methods (Table). Using the annual Medicare wellness visit as a structure to assess for fall risk, physical activity, depression, cognition, and other common geriatric issues can reinforce the need to stay active.

It is important to assess what concerns or questions any older adult and their family may have about being physically active. The need for physical activity does not decrease as one ages, instead it increases. The intensity or type of activity may change, but all older adults need to have physical activity as a significant part of their care. The NP works with the provider team and Ms. Green to keep her physically active and involved in social activities at the senior center. The goal is to keep her functionally fit and to let her remain in her home as long as she is comfortable there.

SUMMARY

The NP plays a key role in reversing deconditioning and improving the physical activity and function of older adults. Physical activity is essential for all older adults, even the frail and those with multimorbidities. All physical activity, no matter how small, can help to maintain or improve function and quality of life. Older adults should start at a level of physical activity that is appropriate for their current level of fitness and gradually increase their duration and intensity. There are significant benefits for older adults even at physical activity levels well below the recommended guidelines. Physical activity must be personally meaningful, fun, and something older adults can successfully do and incorporate into their everyday life.¹ There are multiple national resources and programs that can start and support the discussion about physical activity.

No one provider can meet all the needs of every older adult; using an interprofessional team and community resources is critical. Partnering with the

older adult, family, caregivers, PT, OT, other professions, and community resources facilitates the development of successful goals and plans and the implementation of activities to promote physical activity. Ageism, fear of falling, lack of motivation, environment, and not addressing physical activity as an essential part of any older adult's routine assessment and management plan can be barriers to success. The NP's holistic approach to encouraging physical activity overcomes these challenges; improves health outcomes, cognition, and attitude; and can reduce the risk for falls.

SUPPLEMENTARY DATA

Supplementary tables associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.nurpra.2016.08.006>. 

References

- Schwingel A, Sebastião E, Chodzko-Zajko W. Promoting physical activity in later life: How to respond to frequently asked questions and concerns about physical activity. *Annu Rev Gerontol Geriatr.* 2016;36(1):33-52.
- Wischenka DM, Marquez C, Felsted KF. Benefits of physical activity on cognitive functioning in older adults. *Annu Rev Gerontol Geriatr.* 2016;36(1):103-122.
- Drewnowski A, Evans WJ. Nutrition, physical activity, and quality of life in older adults: summary. *J Gerontol A Biol Sci Med Sci.* 2001;56(Spec no 2):89-94.
- Fedecostante M, Dell'Aquila G, Eusebi P, et al. Predictors of functional changes in Italian nursing home residents: The U.L.I.S.S.E. Study. *J Am Med Dir Assoc.* 2016;17(4):306-311.
- US Department of Health and Human Services. Be active your way: Consumer booklet for adults. Rockville, MD: Office of Disease Prevention and Health Promotion. 2008.
- Warburton DER, Bredin SSD, Jamnik V, Shephard RJ, Gledhill N. Consensus on evidence-based preparticipation screening and risk stratification. *Annu Rev Gerontol Geriatr.* 2016;36(1):53-102.
- American Board of Internal Medicine Foundation. Choosing Wisely: an initiative of the ABIM Foundation. <http://www.choosingwisely.org/wp-content/uploads/2015/02/APTA-Choosing-Wisely-List.pdf>. 2015. Accessed August 8, 2016.
- National Center for Health Statistics. *Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities*. Hyattsville, MD: NCHS; 2016.
- Resnick B, Ory MG, Hora K, et al. A proposal for a new screening paradigm and tool called Exercise Assessment and Screening for You (EASY). *J Aging Phys Act.* 2008;16(2):215-233.
- Taylor D. Physical activity is medicine for older adults. *Postgrad Med J.* 2014;90(1059):26-32.
- Berra K, Rippe J, Manson JE. Making physical activity counseling a priority in clinical practice: the time for action is now. *JAMA.* 2015;314(24):2617-2618.
- Yang K, Lee YS, Chasens ER. Outcomes of health care providers' recommendations for healthy lifestyle among U.S. adults with prediabetes. *Metab Syndr Relat Disord.* 2011;9(3):231-237.
- American Colleges of Sports Medicine. Exercise is Medicine. www.exerciseismedicine.org/. 2016. Accessed August 8, 2016.
- National Institute on Aging. Exercise & Physical Activity: Your Everyday Guide from the National Institute on Aging. <https://www.nia.nih.gov/health/publication/exercise-physical-activity/introduction>. 2016. Accessed August 8, 2016.
- National Institute on Aging. Go4Life. <http://www.nia.nih.gov/Go4Life>. 2011. Accessed August 8, 2016.
- Boltz M, Resnick B, Galik E. Preventing functional decline in the acute care setting. In: Boltz M, Capezuti E, Fulmer T, Zwicker D, eds. *Evidence-Based Geriatric Nursing Protocols for Best Practice*. New York, NY: Springer Publishing Co; 2016.
- Graf C. Functional decline in hospitalized older adults. *Am J Nurs.* 2006;106(1):58-67, quiz 67-58.
- Resnick B, Boltz M. Incorporating function and physical activity across all settings. *Annu Rev Gerontol Geriatr.* 2016;36(1):293-321.
- Hastings SN, Sloane R, Morey MC, Pavon JM, Hoenig H. Assisted early mobility for hospitalized older veterans: preliminary data from the STRIDE program. *J Am Geriatr Soc.* 2014;62(11):2180-2184.
- Milner C, Milner J. Impact of policy on physical activity participation and where we need to go. *Annu Rev Gerontol Geriatr.* 2016;36(1):1-32.
- Rollnick S, Miller WR, Butler CC. *Motivational Interviewing in Health Care*. New York, NY: The Guilford Press; 2008.
- Gray-Miceli D, Quigly PA. Preventing falls in acute care. In: Boltz M, Capezuti E, Fulmer T, Zwicker D, eds. *Evidence-Based Geriatric Nursing Protocols for Best Practices*. NY: Springer Publishing Company; 2016:283-309.
- Nasreddine ZS, Phillips NA, Bedirian V, et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. *J Am Geriatr Soc.* 2005;53(4):695-699.
- CDC. STEADI: Stopping elderly accidents, deaths & injuries. www.cdc.gov/steadi/. 2015. Accessed May 18, 2016.
- Shubert TE, Smith ML, Ory MG, et al. Translation of the otago exercise program for adoption and implementation in the United States. *Front Public Health.* 2014;2:152.

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1555-4155/16/\$ see front matter
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<http://dx.doi.org/10.1016/j.nurpra.2016.08.006>

Supplementary Table 1. Potential Barriers for Physical Activity: Clinically Relevant Questions for Providers

System	Aging Changes Relevant to Physical Activity <i>Do you have the following symptoms?</i>
Head	<ul style="list-style-type: none"> • Do you have changes in your vision or decreased visual acuity (even with corrective lens)?
Eyes	
Ears	<ul style="list-style-type: none"> • Do you have trouble driving, reading or watching television because of your eyesight?
Nose	
Throat	<ul style="list-style-type: none"> • Do you have diminished hearing? Wear a hearing aid?
Respiratory	<ul style="list-style-type: none"> • Do you have shortness of breath at rest? With activity? • Persistent coughing or wheezing?
Cardiac	<ul style="list-style-type: none"> • Do you feel like your blood pressure changes with your body position? • Do you feel dizzy if you change position quickly? • Do you experience chest pain, chest pressure or palpitations? At rest or with activity? • Do you experience swelling/edema? • Do you experience leg cramping [claudication] when you walk? If so, how far can you walk before you experience these symptoms?
Abdomen	<ul style="list-style-type: none"> • Have you lost 10 pounds or more over the past six months without trying to do so? • Do you have trouble with diarrhea? Incontinent of stool?
Musculoskeletal/Neurological	<ul style="list-style-type: none"> • Do you have joint or muscle pain? • Limited range of motion of your back or joints? Weakness (focal or diffuse)? • Balance unsteadiness? • History of falls? If so, how often? • Do you have trouble with your memory?
Genitourinary	<ul style="list-style-type: none"> • Do you experience urinary frequency? • Do you have trouble with bladder control?
Endocrine	<ul style="list-style-type: none"> • Have you ever had episodes of hypoglycemia?
Psychological	<ul style="list-style-type: none"> • Do you feel sad or depressed? • Do you feel anxious or agitated?

Supplementary Table 2. Motivational Interviewing Strategies

Techniques	Sample Questions
Engaging	<ul style="list-style-type: none"> • How can I help you today? • How can I help you fit more activity into your daily life? • Can we spend a few minutes talking about your physical activity (on a typical day)? I may have to clarify [my understanding] with additional questions, is that OK?
Focusing	<ul style="list-style-type: none"> • What concerns you most about increasing your physical activity? • What are a few important benefits that you see by increasing your activity? • How strongly do you feel about increasing your physical activity?
Evoking	<ul style="list-style-type: none"> • Why would you want to increase your physical activity? • How important is it to you to increase your physical activity? • Suppose you continue with your current [sedentary] lifestyle. What do you think would happen in one, five or ten years (i.e., what would happen if you did not increase your physical activity)?
Planning	<ul style="list-style-type: none"> • If you did decide to increase your physical activity, how would you do it? • What would you like to do? • What would be a first step for you? What do you intend to do?

Supplementary Table 3. Functional and Cognitive Assessment Tools

Name of Tool	Where to find
Timed Up and Go	http://www.cdc.gov/steady/pdf/tug_test-a.pdf
30 Second Chair Stand	http://www.cdc.gov/steady/pdf/30_second_chair_stand_test-a.pdf
4 Stage Balance test	http://www.cdc.gov/steady/pdf/4-stage_balance_test-a.pdf
Montreal Cognitive Assessment (MoCA)	https://consultgeri.org/try-this/general-assessment/issue-3.2.pdf
Mini-Mental Status Exam (MMSE) (copyrighted)	http://www.heartinstitutehd.com/Misc/Forms/MMSE.1276128605.pdf
Mini-cog	https://consultgeri.org/try-this/general-assessment/issue-3.1.pdf