GeriNotes

March 2022 • Vol. 29 No. 2

APTA Geriatrics
An Academy of the American Physical Therapy Association
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From the President

Cathy Ciolek
President,
APTA Geriatrics

Another APTA Combined Sections Meeting (CSM) has come and gone! While COVID-19 and the weather kept some from attending, this conference matched the theme: Better Together, Together Again. I was impressed that the attendees did an amazing job of keeping to the mask protocols, wearing them at all times in any public enclosed space unless speaking at a microphone or actively eating/drinking.

The best part of any CSM is the people. My first CSM was in 1995; I came for the pre-conference FOCUS course that helped to prepare people for the Geriatric Specialist Exam. I attended the specialist's recognition ceremony; at the time it recognized each new clinical specialist individually. It was at this meeting that I decided to sit for my GCS (which I did in 1996) and volunteer to be the State Liaison (now known as State Advocate) for Delaware. The connections I made with other clinicians and section leaders were the start of many lifelong friendships and mentor experiences. While the ceremony can no longer address everyone who is newly certified, APTA Geriatrics does this at the breakfast the following day. Seeing their faces and all the potential in that room is inspiring! Congratulations to everyone who completed the process for the first time, or those who did their first (10 years) and second (20 years) re-certifications.

This year's Carole B. Lewis Lecture was presented by Dr. Bill Staples, PT, DPT, DHSc, FAPTA. His talk discussed the importance of recognizing pain and issues of mental health in ageing adults and our colleagues. The awareness of mental health issues has never been more important as we address the challenges of COVID-19, growing social isolation, and empathy fatigue. The manuscript will be available in a future issue of the *Journal of Geriatric Physical Therapy* and a video of the lecture can be found here: https://aptageriatrics.org/continuing-education/carole-b-lewis-distinguished-lectures. I encourage you to take the time to watch and learn from our esteemed colleague. Thank you, Bill!

Educational sessions ranged from topics on ageism to high-intensity exercise. You can still sign up for the CSM On-Demand Sessions for some of the presentations including Virtual Fall Risk Screening, APTA Geriatrics Evidence-Based Guidelines on Osteoporosis, Integrating the Annual Visit for Ageing Adults, Role in Managing Depression, UN Decade of Healthy Ageing, and others.

With the Board of Directors authorizing free student dues in 2022, they were on a mission to meet as many students as possible at CSM. The reception of the students was amazing. Since offering free student membership, our student population has grown from 4% (198 members) of APTA Geriatrics membership to 14%. We now have 779 student members! If you know PT or PTA students who are interested in a career in geriatric physical therapy, please encourage them to join us this year to explore what we have to offer.

APTA Geriatrics launched our new website just prior to the start of CSM. Visit us now at www.aptageriatrics.org. You can visit on your phone, tablet, or computer and have the same great experience as we adopted a "mobile-first" technology. We have more exciting web pieces to roll out over the next few years. Thank you to the staff and volunteers who worked diligently to keep this project moving.

There is still time to submit abstracts for pre-conference courses, educational sessions, platforms, and posters for Combined Sections Meeting next year in sunny San Diego, California. [submission deadline March 14 for sessions, July 18 for platforms and posters]

Since CSM is about the people, we want to invite each of you to attend in person, or virtually, next year. Also keep a lookout for information about a stand-alone APTA Geriatrics conference later in 2023. More information to come!

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Questions for APTA Geriatrics leaders and staff can be submitted to geriatrics@aptageriatrics.org.

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From the Editor

Michele Stanley
Editor,
GeriNotes

Knock! Knock! Sounds like the beginning of a series of never-ending jokes that my kids in their early grade school years adored. Maybe you enjoyed that kind of silly, pun-ny, nonsensical, almost always innocent humor yourself in your own younger years.

"Knock! Knock!" was a code word passed between providers at a home health agency that I worked for soon after PT school graduation. This agency, or at least my direct supervisor, was extremely opposed to therapists (or nurses) measuring or mentioning a client's cognition or mental status beyond the "A& OX3." The reality is, as I'm sure you've experienced no matter where you've practiced, that *not charting* someone's cognitive deficits does not translate to intact cognition. Like most other deficits or untreated health conditions, the condition just becomes the elephant in the room.

In that agency, when giving oral hand-off communication to another staff member, the code was to list the other problems/conditions/impairments being actively addressed and then to say, "Knock! Knock!" so that the next staff member in was alerted to be wary. You just couldn't be sure exactly what you would find when the client answered the door. Thankfully, that was many, many years ago and I'm both seasoned enough and professionally confident enough *not* to play that administrative game and to recognize the potential harms that were "overlooked." This story and situation came heavy to my mind when editing this issue and reading one of our lead features: "Crimes, Calamity, and Confusion" – a great collaboration by member Lise McCarthy PT, DPT and Dr. Jon Canick, PhD a neuropsychologist in her community. Elder Self-Neglect (ESN), a geriatric syndrome, may manifest in lots of ways that are often unrecognized as signs of cognitive distress: stacks of largely unopened Amazon boxes that are a tripping hazard, inappropriate clothing choices for weather, outright filth in environment or person. It is well worth educating yourself in this syndrome and its ramifications for your own practice as well as to notice how much we all benefit when physical therapists do not practice in a silo. There is much that we can learn, as well as teach, when we practice our craft collaboratively with those in other disciplines.

Cover photo credit: HOP-UP PT

Elder Self-Neglect (ESN), a geriatric syndrome, may manifest in lots of ways that are often unrecognized as signs of cognitive distress.

Consider this an open invitation to share *GeriNotes* articles with those you work with to open wider conversations, as well as a sincere invitation to share your collaborative efforts with other professionals as you write for us in future issues.

Are you looking for a new community-engagement and practice expanding opportunity as the world opens again? (I'm choosing to be very optimistic about having the many COVID variants in check!) Check out HOP-UP PT: a ready formula for a new service line for your outpatient practice or to expand the offerings of your hospital. Good stuff: well-researched, easy to implement and steeped in wellness culture.

See you soon at the next Journal Club meeting. If you don't attend you are surely missing out on a great opportunity to participate in knowledge translation . . . and free CEUs.

GeriNotes

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Mission: To provide engaging content that empowers the community of physical therapy clinicians to build expertise and expand the delivery of evidence-informed care that promotes health and wellness in ageing adults.

Vision: To create an evolving online community through which clinicians develop their knowledge and skills based in shared ideals that are person-centered; and promote a world where ageing adults move, live, and age well.

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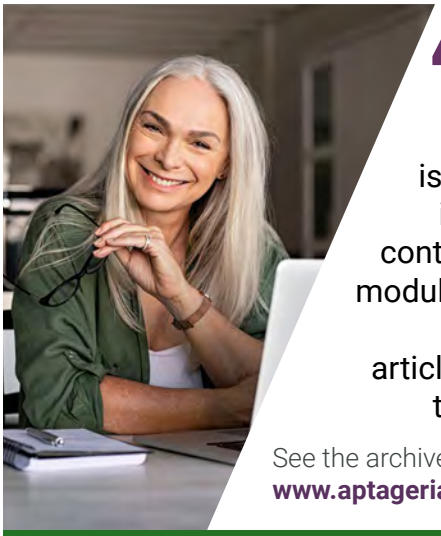

4 contact hours

The **November** issue of *GeriNotes* is dedicated as a continuing education module with a focused theme. Read the articles and complete the related exam.

See the archives at
www.aptageriatrics.org/gerinotes

Exam and contact hours are FREE to PTA members!

Fall Prevention Programs Across the Care Continuum

by Jennifer Gindoff, PT, DPT, DHSc; Jennifer L. Vincenzo, PT, MPH, PhD; and Heidi Moyer, PT, DPT

The Balance and Falls Special Interest Group (SIG) of APTA Geriatrics consistently strives to meet the needs of our members. One such need is fielding specific questions received via email related to balance and falls management in the older adult population. Our research liaison, Jennifer Gindoff, continues to dive through the literature to answer these questions, providing a concise summary of her findings. Recently we received the following request.

Member request:

"I'm looking for any resources on fall prevention policy/programs for acute and out-patient settings. Specifically interested in programs that support a continuum of care with the transition between the 2 settings. If you have resources, please share."

Dr. Gindoff's reply:

While many community-based and clinical programs exist to manage falls in various populations, there is a dearth of evidence for programs that span multiple settings of care acuity. Most of the research is siloed. The focus in acute care is on identifying individuals at risk of falls and providing appropriate supervision, environmental modification, and staff and patient education (as those are considered the primary risk factors). Fall prevention research in the community focuses on promoting understanding of risk factors and increasing exercise through community-based programming. An editorial by Hicks (2019)[1] described studies addressing evidence-based strategies to reduce the risk of falls and reported that there have been no gold standard or specific exercises identified that address this issue (at time of publication).

Falls among older adults have been a well-documented public health concern for several years. Cheng et al. [2] completed a meta-analysis in an effort to identify effective fall prevention programs and found, when compared to usual care, the only effective interventions at reducing fall rates were risk assessment, exercise, and multifactorial interventions (defined as 3 or more interventions). However, some comparisons were not statistically significant due to small sample sizes. Thompson et al.[3] examined the effectiveness of a 12-week multidimensional exercise program in older adults with regard to improving balance and reducing fall risk and found significant improvements in TUG scores, functional reach ability, and 30 second chair rise scores. While it is helpful to know that multimodal exercise programs reduce fall risk, this is not new information and, from a clinical perspective, not inherently helpful as it remains unclear what specific activities within a multifactorial approach are the most effective. The efficacy of a multimodal approach may be due to a number of factors such as the use of components that are in-and-of themselves effective, the interaction of interventions, or increased likelihood of success that the provided interventions will target the fall risk factors in a specific individual.[2] Therefore, in the quest for clarity regarding fall prevention interventions, literature on some existing community-based fall prevention programing was reviewed to determine if physical therapists could, perhaps, plant the seeds early (even in the acute care phase) with the intention of preparing patients to eventually participate in an organized program later.

Balance programs

The National Council on Aging (NCOA) recommends a number of fall prevention programs with various target audiences and dissemination methods.[4] Using information available from NCOA in 2016, Walters et el.[5] listed 4 fall prevention programs which will be discussed here: Otago, Stepping On, Matter of Balance, and Tai Ji Quan: Moving for Better Balance. According to Coe et al,[6] Matter of Balance (MOB) received the most referrals, enrollments, and completions of the available fall prevention programs studied. The MOB is reported to be among the top 3 fall risk programs and has the most evidence to support its effectiveness.[7]

Matter of Balance (MOB)

MOB is an evidence-based program consisting of eight, 2-hour sessions designed to reduce fear of falling, increase physical activity levels in order to enhance fall self-efficacy, and promote exercises that increase strength, flexibility, stamina, and balance.[8] Small group activities including discussions, lectures, role play, exercise training, and mutual problem solving are basic to MOB; weeks 1-3 consist of cognitive behavioral strategies to support behavior change and weeks 4-8 focus on fall habits, fall prevention, and exercise.[5,9] Significantly improved self-reported health, decreased fear of falling, reduced fear of falling that interfered with activity, and improved activity levels for 4296 community dwelling older adults who attended the program were reported in one study.[10] Additionally, fall rates were reduced by 62% and injurious falls by 74%; program completion rate was 97.25%.[10] Matter of Balance is well received and reduces fear of falling and fall risk.[5,7,9,10] Some literature suggested that physical activity levels improve post MOB.[9,10] How-

ever no difference was found in step count following MOB in 48 community-dwelling older adults in a different study; the authors postulated the lack of significance could have been due to non-randomization, lack of a control group, small sample size, and ceiling effects.[11] While MOB was designed to be a community-based program, it is also effective in assisted living residents of advanced age (mean of 90-years-old in assisted living vs. 70-years-old mean age in community dwellers).[7,9] One study found improved perceived control of falls risk and increased levels of exercise post program completion and reported no difference between community-dwelling participants versus assisted living participants .[9] Improved Mini Best test scores (although statistically significant, may not have reached clinical significance)have been reported.[7] MOB has not been studied in skilled nursing facilities or acute care settings at this time. Further research would be needed to assess the efficacy of the program in other settings, especially for patients with higher medical complexity, lower functional performance, and increased need for fall risk interventions.

Otago (OEP)

While MOB has not been studied in acute care or skilled nursing, the Otago program has literature to support its use with older adults at a lower level of function and has shown to be effective in reducing falls and fall related injuries in adults 80 years of age and older.[12,13]

The OEP, as well as modified versions of the program,[13] are effective in reducing fall risk,[14,15] fear of falling, and improving balance in community-dwelling older adults.[14–16] When adapted to a long-term care setting, a pilot program found a 46% reduction of falls after 6 months (p=0.036), and a reduction of 76% (p =0.025) after 1 year.[17] The exercise portion of the program was performed in a group setting to meet the needs of the long-term care population.[17] Success in the community and in a long-term care setting indicates a potential for utilization across the spectrum (with minor modifications). Although the program is simple, adherence remains low with literature finding adherence levels between 22 and 56%.[16,19] Low adherence is potentially explained by the advanced age and severity of health status of its target audience and the extended time of the program. One study found motivational interviewing and good physical activity habits improved program adherence.[19] [As the Otago program has been shown to be effective when modified, and has demonstrated success in various settings, this program could be effective as a fall prevention program across the continuum of care. More information about OEP in *GeriNotes;* 2021;28(3):12-18.][17,18]

Stepping On

Stepping On, 7 weeks of 2-hour workshops, was developed in 2004 by an occupational therapist.[20] The program's intended audience is older adults with history of falls and fear of falling and focuses on self-efficacy education in small groups.[20 21] Stepping On exercises include long arc quads, standing hip abduction, heel raises, tandem stance, tandem walking, side stepping, and chair rises without upper extremity support.[22] Participant perception of the program was analyzed and 88% of participants stated that their risk of falls was reduced, 66% reported still performing exercises from the program, 87% reported completed home modifications, and 100% reported using safe mobility techniques as taught in the class.[20] Participants reported gaining knowledge about the importance of balance and strength training and improved confidence in strategies regarding how to prevent falls by modifying movement.[20] Similar results of improved fall awareness and improved participation in exercise were found in another report with only 29% of participants reporting exercising prior to the program and 78% reporting exercise at follow-up.[21] However, another large scale study with over 10,000 participants found no significant difference in fall rates following completion of the Stepping On program. This lack of findings could be due to the data collection process as fall outcomes were obtained from hospital and outpatient systems and the investigators were unable to remove fall data from participants at high risk of falls who were ineligible to participate in Stepping On.

Tai Ji Quan: Moving for better balance

Tai Ji Quan (TJQ) is a 24-week program (1-hour sessions, 2 to 3 times per week) focusing on gentle flowing movements in a continuous pattern targeting balance, lower extremity strength, and limits of stability.[24] The exercises consist of 8 exercise forms modified to facilitate therapeutic movement.[25] These movements promote synchronized breathing, weight shifting, spinal alignment and rotation, coordinated eye-head-hand movements, and proactive and reactive movement.[25] The program also provides dual-task training through mindfulness, postural alignment, breath awareness, active relaxation, slow movements, weight separation, and integrated movement.[26] Research has shown that TJQ is effective in reducing falls rates, even when compared to multimodal exercise or stretching. It is also effective in reducing injurious falls, and is better at reducing serious injurious falls than multimodal exercise.[25] A systematic literature review found TJQ to be effective in reducing falls for individuals with Parkinson's disease and post-cerebral vascular accident when compared to both no treatment and other active therapy groups; however, the number of studies available were small and the authors recommended further research.[27] Adherence to TJQ is similar to other programs at rates around 70%.[25] The NCOA reported TJQ to be most effective when practiced for at least 50 hours over 6 months.[26] Similar recommendations are noted in the 2011 Cochrane Review[29] on improving balance in older people which cites an article by Sherrington et al.[30] recommending at least 50 hours of balance training. According to the TJQ website, there is also a seated ver-

sion of the class.[28] The recommendation for continuous balance training greater than 50 hours along with the availability of a seated version of this program may make it an ideal program to lead into fall prevention in the early stages of rehab, especially for individuals at high risk of falls.

Other programs

The NCOA list of approved fall prevention programs is long, the majority of programs on the list target access, socialization, and home modification. The other programs on the list that include exercise are EnhanceFitness and Healthy Steps in Motion (HSIM).

EnhanceFitness is a 1-hour class offered 3 days a week that combines aerobic, strength, posture, flexibility, and balance exercises provided in either 16-week cycles or on a continuous basis.[24,31,32] Classes are taught by individuals with fitness certification or health professionals who complete 12 hours of EnhanceFitness training prior to teaching the program.[32] Each additional week of program completion leads to improved outcomes on functional assessments.[24] A review of the program literature found conflicting evidence regarding whether a dose-response relationship exists between EnhanceFitness and fall rates.[31] A more recent study found both clinically and statistically significant improvements in arm curl, 30-second chair rise, and 8-foot-up-and-go scores at 4-month follow-up with a mean attendance of 10.6 weeks out of 16 for an overall adherence rate of 66%.[32] More research needs to be done regarding efficacy but standardizing "multimodal exercise" both for research purposes and for clinical practice would be a step in the right direction.

Healthy Steps in Motion has been utilized by the Pennsylvania Department of Aging since 2007 and has 2 arms: one arm is falls assessment and referral to appropriate providers, home modification, and education; the second arm is a group exercise program offered in 1-hour sessions twice a week for 8 weeks.[33] The exercise portion of the program focuses on technique, guided group exercise, and providing links between exercise and functional tasks to promote lower extremity strength, flexibility, and balance (and the class is linked to a walking goal to support aerobic endurance).[33] The reported fall reduction rate for HSIM is 28%.[33]

How do I find these programs?

Gerinotes published a 3-part series explaining evidence-based programs, their importance, and how to locate resources for implementation.

What are evidenced-based programs and why should I care?[34] https://geriatricspt.org/consumers/partnerships/GeriNotes-26-3-Article.pdf

*Part 2: Evidence-based programs and your practice: A foundation for value-based car*e[35] https://geriatricspt.org/consumers/partnerships/GeriNotes-26-4-Article.pdf

Part 3: Evidence-based Programs and your practice: A foundation for value-based care[36] https://geriatricspt.org/consumers/partnerships/GeriNotes-26-5-Article.pdf

Which program is right for my patient?

The NCOA, with input from APTA-Geriatrics members, developed an evidenced-based falls prevention programs document to assist with decision-making in determining the type of program that is appropriate for an individual. While all fall prevention programs are designed to reduce falls, "not all falls prevention programs target the same outcomes."[4] As discussed in this article, program outcomes vary and include interventions such as strength, balance, and education. This document outlines clinical indicators for fall risk as well as fall prevention programs with their intended target population, risk level, and contraindications. For details, please refer to the NCOA Evidence-based Falls Prevention Program Risk Continuum Guidance for Program Selection at: https://www.ncoa.org/article/evidence-based-falls-prevention-programs-risk-continuum-guidance-for-program-selection.[4]

Conclusion

Multimodal exercise programs have been shown to reduce risk of falls; the exact mechanism by which this occurs is unclear. There are community-based fall prevention programs that are approved by the NCOA although none that are meant to transition across the continuum of care. The programs discussed above all have components that could be used across the continuum of care; this has not been studied and cannot be supported by the research at this time. Otago appears to be the most modifiable program as each exercise has levels that can be progressed as appropriate. Additionally, the Otago program targets individuals 80 years and older and has been modified in various ways and still been found to be effective. MOB has been shown to be highly effective, has high adherence rates, is effective for assisted living residents, and includes cognitive behavioral strategies which could possibly be implemented in acute care depending on the patient population, although hospital lengths of stay will be a limiting factor. Participation in the Stepping On program led to reported improved participation in exercise following program completion. TJQ has been proven effective, has a seated version, and good program adherence. While it is tempting to create new programs to fit our needs, it may be better to modify, adapt, and combine existing programs to allow for progression across the continuum of care. In the meantime, it is advisable to use components of programs as appropriate, educate participants that they are performing activities in a specific fall prevention program, and provide information on how to access community-based fall prevention programing. Hopefully, this will promote continued physical activity, participation in home exercise programs, and enrollment and completion of community-based balance programs following out-patient therapy.

Do you have a question regarding balance and falls management that you would like answered? Contact our research liaison at agptbalanceandfalls@gmail.com.

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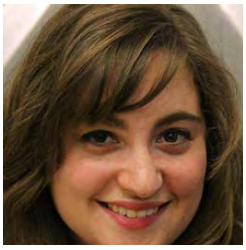

Jennifer Gindoff, PT, DPT, DHSc is a Board Certified Geriatric Clinical Specialist (GCS) and a Certified Dementia Practitioner (CDP). Dr. Gindoff is currently acting as the Research Liaison for APTA Geriatrics Balance and Falls Special Interest Group. She works in home health, skilled nursing, long-term care, and outpatient geriatrics in Columbus, Ohio

Jennifer L. Vincenzo, PT, MPH, PhD: Dr. Vincenzo is an Associate Professor in the Department of Physical Therapy at the University of Arkansas for Medical Sciences. She conducts research in the implementation science of falls prevention. Dr. Vincenzo is a Board Certified Geriatric Clinical Specialist (GCS), a Certified Dementia Practitioner (CDP), a Certified Brain Injury Specialist (CBIS), a Certified Health Education Specialist (CHES), and a Certified Wound Specialist (CWS). She is the current chair of the Balance and Falls Special Interest Group of the American Physical Therapy Association-Geriatrics (APTA-G). Dr. Vincenzo also serves on the APTA-G/National Council on Aging Task Force and serves on the National Council for Falls Risk Awareness and Prevention.

Heidi Moyer, PT, DPT: Dr. Heidi Moyer is a Board-Certified Clinical Specialist in Geriatric Physical Therapy (GSC), a Certified Exercise Expert in Aging Adults (CEEAA), and a Registered Yoga Teacher (RYT-200). They serve as an adjunct professor in the Governors State University Doctor of Physical Therapy Program, Chair for the Illinois Physical Therapy Association Geriatric Special Interest Group (IPTA GeriSIG), the APTA Geriatrics Illinois State Advocate, and as secretary of the Balance and Falls Special Interest Group for APTA Geriatrics. Dr. Moyer works as a physical therapist at RML Specialty Hospital in Hinsdale, Illinois.

Did you know that you can join a Special Interest Group (SIG)

FOR FREE?

(for APTA Geriatrics members only)

Balance and Falls

Health Promotion and Wellness

Bone Health

Cognitive and Mental Health

Residency/Fellowship

Global Health for Ageing Adults

Sign up at
https://geriatricspt.org/members/my-special-interest-groups/

CSM 2022: Awards Ceremony and Members Meeting Were Back In-person

It was great to be back in person for CSM 2022! The annual Awards Ceremony and Member Meeting looked and felt a little different this year due to the circumstances of the pandemic. It was no less a celebration of the accomplishments of our members and the profession of physical therapy. While we could not all be together in person, it is still important to recognize our peers and the excellence they bring to our profession. The awards categories were consolidated to represent the key areas of APTA Geriatrics' mission: Clinical Practice, Education, Research and Service.

Carole B. Lewis Lecture

Michelle Lusardi, PT, DPT, PhD, FAPTA, will present the Carole B. Lewis Lecture at the Combined Sections Meeting in 2023, in San Diego. We look forward to an engaging and inspiring Lewis Lecture by Michelle next year.

Clinical Impact in Geriatrics Award

The Clinical Impact in Geriatrics Award recognizes one APTA Geriatrics member for outstanding clinical practice in a geriatric health care setting. This year's award was given to **Edward Reyna, PT, DPT**. Over the past 10 years, Dr. Reyna has been an advocate for patient care and inclusion. He achieved the title of Master Clinician within his company and then obtained the designation of Board-Certified Clinical Specialist in Geriatric Physical

GCS Breakfast

Students at the Members Meeting

APTA Geriatrics Board of Directors

Therapy along with the recognition as a Certified Exercise Expert for the Ageing Adult. His letters of recommendation describe him as the perfect role model of a physical therapist that exemplifies clinical excellence. He is a highly dedicated professional who knows how to motivate his patients to achieve their goals. Both in the rehab department and in person, Dr. Reyna is a dynamic and powerful communicator who possesses the gift of making complex subjects understandable. He is a humble and approachable person that loves to share his extensive knowledge with others, especially his coworkers.

Academic Impact in Geriatrics Award

The Academic Impact in Geriatrics Award recognizes one APTA Geriatrics member for excellence in an academic setting. This year's award is given to **Dr. Barbara Billek-Sawhney, PT, DPT, EDD**. Dr. Billek-Sawhney is a dedicated educator who continually works to improve her coursework, competencies, and examinations at Slippery Rock University where she is on full-time faculty. Coupled with an ongoing commitment to educate therapists in her clinical practice area and around the globe, Barb excels as both a physical therapist and educator. Desire to serve both students and patients well makes her stand out. Barb goes above and beyond to ensure her students receive the most out of their education, and, in doing so, shares her passion for her profession. Slippery Rock University is in a rural area without a medical center. Dr. Barb has invested much of her time in developing case studies, filming real life patient videos, sharing her experiences, and engaging students in active learning via case scenarios and labs. Her teaching methods create an environment that allow students to gain hands-on experience and be active participants. Barb integrates service learning into 2 courses she teaches. She is mentoring physiotherapists in Ethiopia on hosting their country's first health fair. Barb has assisted in grant writing, logistical organization, identification of space/equipment needs, and developing educational materials, and handouts. It is evident that she makes content relative to geriatrics engaging and dynamic. She recognizes that the students of today are her future colleagues — so she actively encourages their engagement with older adults.

Excellence in Geriatric Research Award

The Excellence in Geriatric Research Award recognizes an outstanding research contribution to science as shared in a research report published by a physical therapist member of APTA Geriatrics in a peer-reviewed journal in the field of geriatrics and gerontology. The research is recognized for the perceived impact of the published report on future research, education, clinical practice, or

a combination of these areas. This year, the Excellence in Geriatric Research Award goes to **Jennifer Vincenzo, PT, MPH, PhD**.

Jennifer and her team published "*Older Adults Perceptions Regarding the Role of Physical Therapists in Fall Prevention: A Qualitative Investigation.*" One key finding of the study was that older adults lack awareness about the role of PTs for fall prevention, believing they should only seek treatment to address a specific problem. This work identified misconceptions that all physical therapists can use to improve utilization of PT to reduce falls.

Joan M. Mills Award

The APTA Geriatrics Joan M. Mills award recognizes an APTA Geriatrics member who has given outstanding service to the Academy of Geriatric Physical Therapy. This award was established in 1980 in honor of Joan M. Mills, APTA Geriatrics' first President, whose vision, determination, and dedication united physical therapists caring for geriatric patients in their commitment to excellence in the delivery of physical therapy to ageing adults.

This year the award is given to **Michele Stanley, PT, DPT**. Michele has been involved in the field of geriatrics for most of her career, working in skilled facilities, home health, extended care and various hospitals in Minnesota and Wisconsin. She exemplifies excellence in the integration of scholarship, service and teaching in the field of geriatric physical therapy. Michele Stanley embodies the characteristics of Joan Mills in advancing the knowledge of geriatric physical therapy practice across all populations while recognizing the unique needs of marginalized groups. Under Michele's leadership as editor of *GeriNotes*, the focus issues for continuing education have recognized the need for physical therapy education regarding these marginalized groups. She has challenged hard topics such as social determinants of health impact on physical therapy, issues related to immigration and LBGTQ populations, impacts of social isolation on frailty and a recent issue dedicated to issues post COVID. Her energy and passion to move the clinical practice for ageing adults forward made her the clear selection for this prestigious award.

Board Certified Geriatric Clinical Specialists

Bob Nithman, the Chair of the ABPTA Geriatric Specialty Council congratulated the 2021 new and renewed Board Certified Geriatric Clinical Specialists (see list starting on page 13).

Outgoing leaders

A final thank you to these outgoing volunteers for their service to the academy.

- Nominating Committee – **Lucy Jones, PT, DPT, MHA**
- Balance and Falls SIG Chair — **Jennifer Vincenzo, PT, MPH, PhD**
- Cognitive and Mental Health SIG Chair — **Christine Childers, PT, MS**
- Health Promotion and Wellness SIG Chair — **Gina Pariser, PT, PhD**
- Section Programming Chair – **Tiffany Adams, PT, DPT, MBA**
- Board of Directors — **Susan Wenker, PT, PhD**
- Board of Directors — **Kate Brewer, PT, MPT, MBA**

We also express our appreciation to retiring State Advocates. Our academy is grateful to have most of our states represented and working at the local level to advocate for ageing adults and the academy. Thank you for all you do to advance our profession.

New APTA Geriatrics Leaders

The following individuals started office after the February 2022 APTA Geriatrics Member Meeting. Thank you for your service!

Treasurer
Pradeep Rapalli PT, DPT, MBA

Director
Kenneth L Miller, PT, DPT

Director
Jennifer L. Vincenzo, PT, MPH, PhD

Bone Health SIG Vice Chair
Kathlene Camp, PT, DPT

Balance and Falls SIG Chair
Heidi Moyer, PT, DPT

Balance and Falls SIG Vice Chair
Haim D. Nesser, PT, DPT

Balance and Falls SIG Secretary
Beth Castellini, PT

Bone Health SIG Secretary
Cynthia Barros, PT, DPT

Cognitive and Mental Health SIG Chair
Alexandra Alexander, PT, DPT

Health Promotion and Wellness SIG Chair
Cathy Stucker, PT, DSc, CMPT

Nominating Committee Member
Carmina Lagarejos Rafael, PT, DPT

Members Meeting

President Cathy Ciolek shared an overview of all that APTA Geriatrics accomplished in 2021. There were 4,858 participants in APTA Geriatrics educational programming. APTA Geriatrics gave 8,660 contact hours, 40% of which were free. There were 312 new Board-Certified Clinical Geriatric Specialists and 47 recertified. *JGPT* grew to a 3.381 impact factor. The board voted to offer free student dues in 2022 and we have already seen our student numbers increase from 1% to 14% of our membership! APTA Geriatrics launched a new website that is mobile-first. We are planning a standalone conference for 2023 and looking to offer hybrid options for the CEEAA course in 2023.

Conclusion

We hope to be in-person with you for next year's celebration, Feb. 22-25 in San Diego, CA. The call for abstracts and session proposals is now open through March 14 (sessions) and July 18 (platforms and abstracts). Thank you for the incredible work you have done over the last 2 years since we were last together in person.

Renewed Board Certified Geriatric Clinical Specialists - 2021

Victor Aguilar, PT
Mitchelle Calderon, PT, DPT
Stephen Carp, PT
Kelly Contreras, PT
Laura Costello, PT, DPT
Michelle Criss, PT, DPT, PhD
Joy Crist, PT, MPT
Jillian Cristaldi, PT, DPT
Kelli Davis, PT, DPT
Anand Desai, PT, MS
John Dugan, PT
Stephanie Dunn, PT, MPT
Lee Ann Eagler, PT, DPT
Adrianna Ellis, PT, DPT
Mary Fischer, PT, DPT
Mary Fitch, PT, MSPT
Meredith Franklin, PT, DPT
Lynn Freeman, PT, DPT, PhD
Christine Fordyce, PT
Susan Glenney, PT, DPT
Lauren Grant, PT
Suzanne Greenwalt, PT, DPT
Barbara Gresham, PT, PhD
Jamie Gunn, PT, DPT
Ross Haley, PT, DPT
Kara Healey, PT, DPT
Christopher Henderson, PT, DPT
Heather Hessler, PT, DPT
Robyn Holland, PT
Joanie Howe, PT, DPT
Tyler Jepson, PT, DPT
Medley Johnson, PT, DPT
Justin Johnson, PT, DPT
Rachel Jones, PT, MS
Rania Karim, PT, DPT
William Lutz, PT
Tammy Lytle, PT, DPT
David Neuenfeldt, PT, DPT
Sue Newman, PT, DPT, MS
Traci Norris, PT, DPT
Helen Ong Hai, PT, MS
Karen Sam, PT, DPT
Claudia Segura, PT, DPT
Alison Squadrito, PT, DPT
Dena Szajko, PT, DPT
Elizabeth Templeton, PT
Megan Valenzano, PT, DPT
Terrance Walless, PT, DPT
Hai Wang, PT, DPT
Tobin Wingard, PT
Brady Whetten, PT
Leslie Zarrinkhameh, PT, DPT

New Board Certified Geriatric Clinical Specialists

New Board Certified Geriatric Clinical Specialists - 2021

Elizabeth Abercrombie, PT, DPT
Tara Adams-Clarke, PT, DPT
Olubanke Adeshina, PT, DPT
Hannah Amoroso, PT
Jannette Andrews, PT, DPT
Brittany Applebee, PT, DPT
Venkateswari Arasu, PT
Kara Ariapad, PT, DPT
Mario Baker, PT, DPT, MS
William Ballinger, PT, DPT
Christine Baranick, PT, DPT
Dana Barenthaler, PT, DPT
Jeremy Barner, PT, DPT
Shannon Barnhart, PT, DPT
Kirstin Barr, PT
Liam Barton, PT, DPT
Domonique Beckham, PT
Lindsey Bellcase, PT, DPT
Doug Benson, PT, DPT
Carolyn Berndt, PT, DPT
Kurt Biebuyck, PT, DPT
Christian Biegel, PT, DPT
Arundhati Bijoor, PT
Kyle Binkley, PT, DPT
William Bodfish, PT, DPT
Christa Boileau, PT
Maricris Boquiren, PT, DPT
Sarah Brandt, PT
Maria Indira Braxmeier, PT, DPT
Heather Brown, PT, DPT
Cheyenne Brown, PT, DPT
Jessica Buckley, PT, DPT
Nancy Buss, PT, MPT
Nicole Buss, PT, DPT
James Byrne, PT, DPT
Brice Brian Cacayan, PT, DPT
Katherine Calvert, PT, DPT
April Carpenter, PT, DPT
Megan Carroll
David Cavagnino, PT, DPT
Abigail Cavallo, PT, DPT
Ik Joon Choi, PT, DPT
Carrie Chruscial, PT, DPT
Arthur Chu, PT
Daniel Cline, PT
Jamie Coates, PT, DPT
Sarah Coggins, PT, DPT
Lauren Collins, PT, DPT
Erin Cooley, PT, DPT
Mary Frances Copeland, PT
Patricia Cornias
Meghan Cram, PT
Crystal Nerence Cunanan, PT
Christy Dagsaan, PT, DPT
Brandon Dale, PT, DPT
Krista Dean, PT
Elise DeMar, PT
Estee Denbo, PT
Nicole Dennis, PT, DPT
Christie Depner, PT
Melissa Dewey, PT, DPT
Skyler Dixon, PT, DPT
Rasha Dove, PT
Jody Dozono, PT
Ashley Drake, PT
Nicole DuBou, PT
Meghan Durney, PT, DPT, DC
Gaurav Dutta, PT, DPT
Tracie East, PT, DPT
Jacklyn Eggenberger, PT
Christl Eggleston, PT
Michael Erickson, PT, DPT
Janine Carla Escuadro, PT
Rajashekar Ethiraj, PT
Simona Fields, PT
Sheryl Finkenbiner, PT
Precilla Ann Florendo, PT, DPT
Rhodora Fontillas, PT, DPT
Megha Foster
Jessica Francois, PT
Kaitlyn Fraser, PT, DPT
Joseph Fugler, PT, DPT
Jackellyne Galvao, PT
Reynalyd Garcia, PT
Shreya Ghiya, PT
Jean Gibbons, PT
Teresa Gingles, PT
Grace Glembocki, PT, DPT
Laura Goedhart, PT, DPT
Heather Goettee, PT, DPT
Delali Goka, PT, DPT
Adora Goldovsky, PT, DPT
Jessica Gonzales, PT, DPT
Walt Gorack, PT, DPT
Sharada Govindu, PT
Amy Gremillion, PT, DPT
Melani Grieff, PT, DPT
Radeyn Guanzon, PT, DPT
Renee Guipo, PT, BSPT
Janice Gullas, PT
David Halbert, PT
Kelly Hale-Brown, PT, DPT
Laura Hall, PT, DPT
Shelly Hampton, PT
Caroline Hanneman, PT, DPT
Cheryl Hardy-Gostin, PT
Meaghan Harper, PT, DPT
Megan Haught, PT, DPT
Amanda Hazell, PT, DPT
Liezl Heaton, PT
Wayne Hefner, PT, DPT
Christopher Henderson, PT, DPT, PhD
Nicolle Hendrick, PT
Emily Henneman, PT, DPT
Sara Hernandez, PT
Viviana Hernandez-Ferrer, PT
Laura Hill, PT, DPT
Mathew Hilton, PT, DPT
Sarah Hiramatsu, PT, DPT
Cary Hirota, PT
Baylor Hogan, PT, DPT
Kristen Honker, PT, DPT
Sara Houlihan, PT, DPT
Cheryl Huffman, PT, MPT
Rosabel Ibay, PT
Monique Ilagan, PT, DPT
Alicia Illis, PT, DPT
Greta Jerdo, PT
Joseph Johnson, PT, DPT
Christian Johnson, PT, DPT
Benjamin Jones, PT
Kiran Joseph, PT, DPT
Lori Jost, PT
Melinda Jotojot, PT, DPT
Ralph Edward Junquera, PT
Kristina Kalyan, PT
Herbert Karpatkin, PT, DSc
Beth Kauffman, PT, MPT, ATC
David Kelley, PT, DPT
Amber Kilgore, PT, DPT
Phil Kilmer, PT, DPT
Hong Soo Kim, PT
Pamela Kline, PT, DPT
Stephanie Knowles, PT, DPT
Allison Koranda, PT, DPT
Akhila Krishnakumar, PT, DPT
Wade Kuehl, PT
Cyril Kurian, PT, DPT, MHA
Christine Kwon, PT
Amanda Laarz, PT, DPT
Abhishek Lalwani, PT
Sarah Lanpher, PT, DPT
Sarah Lansing, PT, DPT
Kerry Latham, PT, DPT
Andrew Lawson, PT
Jennifer Lebow, PT
RAUL LEIJA, PT, DPT
Cressida Lewis, PT
Kevin Lindsay, PT
Dara L'Italien, PT, DPT
Serena Liu, PT
Tammy Loftis, PT
Morgan Lopker, PT, DPT
Samantha Lovos, PT, DPT
Kyle Lucca, PT
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Jonathan Mantooth, PT, DPT
Ryan Marin, PT, DPT
Mary Martin, PT
Trinity Martin, PT, DPT
Michalle Massey, PT, DPT
Beulah Mathew, PT
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Sarah McAndrew, PT
Amber McIntyre, PT, DPT
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Leslie Mento, PT, DPT
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Emily Morrel, PT, DPT
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Alison Nagel, PT, DPT
Sarah Nalbandian, PT, DPT
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Sowmiya Swaminathan, PT
Taylor Sweers, PT
Sylvia Tam, PT, DPT
Christy Tanton, PT
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Chetna Tara, PT
Logan Taulbee, PT, DPT
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Mary Tieng, PT, DPT
Ashleigh Trapuzzano, PT, DPT
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Alise Tupuritis, PT
Rebecca Uthe, PT
Cathleen Uzunoglu, PT, DPT
Kimberly Varnum, PT, DPT, BAPPSC
Viviene Neriz Vicedo-Sandico, PT, DPT
Shaina Vickery, PT, DPT
Lord Vismanos, PT, DPT
Wendy Viviers, PT, DPT, BS
Katie Wadland, PT
Carly Walters, PT, DPT
Megan Watkins, PT
Courtney Weaver, PT, DPT
Danielle Wheeler-Vickery, PT
Laura White, PT, MSPT, DScPT
Thomas Williams, PT, DPT
Kimberly Williams, PT, DPT
Allison Willits
William Wimble, PT, DPT
Beth Wittry, PT, DPT
Lindsey Wolson, PT
Tasha Womack, PT, DPT
Samantha Wong, PT, DPT
Elizabeth Wonsetler-Jones, PT, DPT, PhD
Taylor Wrice, PT, DPT
Julie Yamashiro, PT, DPT
Chandra Sekhar Yanagunde, PT, DPT
Luchita Zambare, PT
Paul Zeagler, PT, DPT
Song Zhan, PT, PhD

Crimes, Calamity, and Confusion: Elder Self-Neglect

by Lise McCarthy, PT, DPT, LPF and Jonathan Canick, PhD

Ellie Sue is a gracious and well-spoken 86-year-old person who never married or had children. In younger days she was fiercely independent and a strong advocate for herself and others. She started receiving physical therapy (PT), occupational therapy (OT), and nursing home health services 2 months ago. In the preceding 6 months she had lived in a SNF (skilled nursing facility) after short hospitalization following a successful total hip arthroplasty (THA); a seizure 4 months after THA resulted in discharge from SNF to a board and care home. A family member lived with her during her first 30 days home followed by another 30 days of home 24/7 caregiver support. There have been significant indications of functional recovery plateau leading to a planned care conference by the home health team. Ellie Sue and family (all live distantly) have been organizing community volunteers to help her so she can live independently in her cozy home of 50 years.

Ellie Sue and family (most are anticipated beneficiaries of her small estate) believe that the health care team is unreasonable. She tells everyone that it is humorous that the team is concerned about her safety. Ellie Sue is not concerned about burning food occasionally because she can use her microwave instead of her gas oven and stove. One supportive family member recently purchased a lightweight fire extinguisher "just to be extra safe." The family calls and sends messages to her daily that she should just refuse the home health services offered because she can take her own medications even though the nurses insist that Ellie Sue requires medication supervision 4x/day. Ellie Sue tells the nurses that she trusts her family and that they are being "ridiculous."

You review the chart. Ellie Sue's recent Tinetti POMA Score of 9/28 demonstrates only a 2-point improvement (not clinically significant) and indicates serious concerns about her balance and stability (i.e., 2/16 Balance subscore, 7/12 Gait sub-score). Ellie Sue refuses caregiver assist with all transfers and with climbing the stairs. She doesn't see the need for her walker either because she often walks away from it to hold onto the furniture or walls. She refuses to use portable shower equipment or grab bars but consistently asks for help in/out of tub. A score of 75 on the Barthel Index indicates Ellie Sue has a "minimally dependent" functional disability without safety equipment in place. The OT lists several concerns: the home phone does not work and safety equipment recommendations were dismissed by Ellie Sue and her family since her iPhone is working. They are not alarmed about messages on the iPhone from 8 different companies about possible password breaches and data leaks because that password still works for Ellie Sue to access her bank accounts and favorite internet sites, and allows her to use her phone to call family. The family doesn't understand why the landline doesn't work until the caregiver gently offers up that Ellie Sue routinely unplugs it to stop solicitor calls and doesn't remember to plug it back in. Nursing notes consistently recommend "supervision with medication" because she is unable to demonstrate the 3-step protocol (4x/day) to: 1) identify her cardiac medication from her other medications; 2) take her own blood pressure using a wrist device with single button; 3) accurately assess the BP and determine if she should take the medication that lowers heart rate. Multiple mechanical interventions have not been successful: different types of pill organizers; instructions with pictures; written instructions; mass practice over 2 months.

The home health team recognizes that Elder Self-Neglect (ESN) and other forms of abuse are often invisible to observers. A constellation of behaviors by Ellie Sue, her family, and friends may be indicative of patterns of several types of abuse. Ellie Sue, her family, neighbors, and other community volunteers seem to be well-intentioned, outspoken people working together to help her return to independent living. They all believe that the home health care team is over-protective, too restrictive, and not supportive of their community living beliefs. What will you, the PT, do?

ESN is a matter of public health

Elder self-neglect (ESN) is a public health problem which arose in public awareness in the mid-20th century. Passage of the 1965 Medicare Amendment to the Social Security Act, insuring people with disabilities and elders have access to needed health and medical services, resulted partially from this problem. Knowledge of ESN has significantly expanded in the 21st century as have those identified by health care providers as people at risk of ESN.

Persons demonstrating and manifesting ESN lose the ability to safely live independently and safely manage the instrumental activities of daily living (IADLs) and activities of daily living (ADLs). ESN is therefore part of the essential criteria for the *Diagnostic and Statistical Manual for Mental Disorders 5th Edition* (DSM-5) diagnosis of major neurocognitive disorders (major NCDs), a DSM-5's

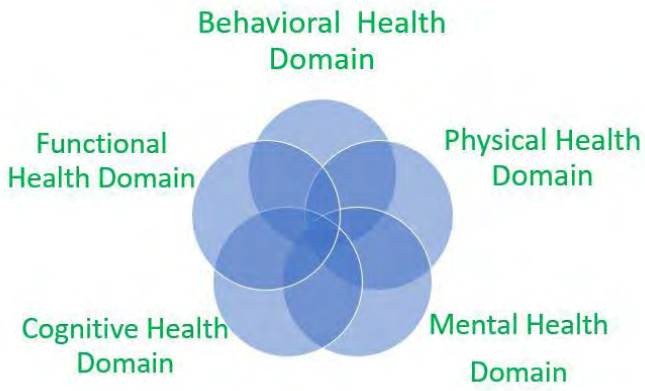
term for dementia. When major NCDs, like reversible and irreversible dementia, are not identified and managed in a timely way, an elder's condition will almost certainly worsen (e.g., functional decline, increased fall risk). This deprives people of their potential for reversal or recovery, while increasing their vulnerability. They put themselves and others at risk for harm (e.g., falls, financial ruin) and require more resources from local, state, and federal healthcare and social service systems. ESN exists on a continuum and reflects a failure of self-care, the end stage being a failure to thrive. That is, ESN happens when older adults lose the capacity to perform essential self-care tasks, most often because of cognitive decline, physical impairments, and functional limitations. Given that ESN reflects the progression of a pathological condition, timely screening for ESN could result in identifying interventions that could help significantly lessen an elder's risk of unintentionally harming themselves and/or others, and potentially reduce their dependence on others via interventions that can improve their safety and functional mobility. Elder Self-Neglect does not necessarily mean a fixed, chronic, and progressive disorder is present, though if left untreated, many potentially temporary disorders would undoubtedly become so. Different disorders and conditions can result in pathological states giving rise to ESN. Neurodegenerative disease, cerebrovascular disorders, and progressive dementias can rob people of their self-awareness, attention, reasoning, and judgment resulting in apathy, abulia (lack of initiative), and indifference about their own status and situation. Sometimes an infection, a head injury, or delirium is the culprit robbing people of their capacity and capability to care for themselves.

ESN: Pathological vs medical disorder

While ESN may be associated with medical, physical, psychiatric, and emotional disorders, it is not an illness that falls squarely in one of these health domains. Rather, ESN is a neurobehavioral condition with roots in a variety of health domains. An interdisciplinary approach is needed to effectively help and protect people living with ESN, as well as their community. Lee et al. showed that frontal executive dysfunction was a prominent finding in the neuropsychological profile of their sample of squalor patients.[1] Another study regarded self-neglect as caused from major neurocognitive impairment and poor insight due to executive/frontal deficits resulting in an inability to safely perform instrumental activities of daily living.[2] Cognitive impairment evident in people with ESN is due to a wide variety of medical etiologies subsequently impairing their ability to perform ADLs, and Dyer et al. regarded deficits in executive functioning (e.g., lack of insight and poor judgment) as causing self-neglect.[3] Findings have been reported that executive dysfunction was an independent risk factor for self-neglect.[4] Mirelman et al. found, in their 5-year study, that executive dysfunction and inattention were tied to falls and also predictors of falls up to 5 years in the future.[5]

ESN is a pathological disorder[2] capturing significant changes and alterations in a person's ability to maintain a healthy state of being because of impaired and/or reduced capacities (e.g., cognitive, physical, functional) needed to manage the many areas of self-care.[4] To identify the presence of ESN in people who are living with a diagnosed or undiagnosed major neurocognitive disorder, one should consider assessing multiple health domains. For instance, there is very high international consensus, according to the authors of a 2015 Delphi consensus study, that major NCD signs and symptoms of dementia affect people across 5 health domains: behavioral, functional, physical, cognitive, and mental/psychiatric.[6] It can be deduced that clues to the presence of ESN in populations of people living with dementia are best found by considering tools that capture information about these different health domains. The physical therapy profession has multiple such tools to choose from (e.g., Barthel Index, Global Deterioration Scale for Primary Degenerative Dementia, Functional Assessment Staging Tool, Behavioral Dyscontrol Scale, and Cog TUG).

Figure 1



People with ESN lack essential self awareness

It is important to keep in mind that people exhibiting ESN likely lack the essential capacity needed to understand, comprehend, or fathom consequences: the essential ingredients to judgment. Unless formally evaluated, people whose essential capacity is mildly, moderately, or severely impaired can successfully mask (in varying degrees) the severity of their ESN-related deficits. Islands of cognitive reserve (e.g., preserved long-term memories for facts and intact social graces) can help hide significant deficits from casual observers.

Self-awareness and awareness of one's own cognitive functioning (metacognition) are some of the more highly developed executive functions we possess. Metacognition enables us to appraise our status, to recognize needs

and anticipate problems, and then to plan solutions accordingly with that knowledge in hand. Without effective and well-functioning self-awareness and metacognition, one cannot self-appraise, recognize, or plan for one's needs. People with ESN, whose self-awareness and metacognition are absent reveal anosognosia, a neurological development robbing them of self-awareness or knowing about their disabilities and problems. Anosognosia is quite debilitating precisely because one cannot accommodate, plan, or anticipate problems for a disability that one is not aware is present.

Attention is another critical ability needed for independent living. Sustained, selective, alternating, and divided attention capabilities, allow persons to attend to safely managing IADLs and ADLs, and/or the potential hazards in their environment. Consider the findings of Zecevi et al. who reported that seniors listed "inattention" as the third cause out of 30 possible causes for an unintended fall, while comparatively, health care professionals ranked "inattention" 50% lower as a cause for falling.[7]

Attention, self-awareness, and metacognition enable one to focus, reason and plan their future appropriately and thoughtfully, considering the abstract aspects of their situation. These essential functions, over time, enable judgment and planning, essential for informed decision-making. ESN reflects an erosion and loss of essential executive function crucial for effective independent living. Intact self-awareness, attention, and metacognition are essential guardrails that alert and alarm one's self to pressing and timely needs, dangers, or vulnerabilities; these abilities allay vulnerability and disability. Capacity to realistically appraise our own ability aids appropriate judgments as to what we are capable of, where, or what assistance we might need. Metacognition, attention, and self-awareness are therefore crucial for protecting a person from undue influence, exploitation, and other harms. When an internal alarm system is not active, it is easier for crimes and calamity (e.g., accidents) to occur.

Confabulation, lying, delusion

A person may confabulate when awareness, attention, metacognition, and memory are impaired, limiting their grasp of reality. Fabrication of thoughts or memories may be generated about experiences or events that did not happen. Confabulation occurs when one's memory is so unreliable and inaccurate that one cannot distinguish between what did or did not happen. Confabulation is not lying, nor does it contain sufficient emotional/psychiatric elements to rise to the equivalent of delusional thinking. However, the presence of confabulation in very compromised and vulnerable elders undermines their ability to effectively manage demands of independent living or to make informed decisions.

A suggestion to physical therapists, as evaluators of the movement system, is to include screening and testing tools that gather objective data that can help identify the possible presence of an ESN syndrome. Consider "an unintended fall is a type of abnormal movement defined as the unexpected and complete loss of balance against gravity due to inadequacies in adapting to challenges within the brain-body system and/or due to inadequacies in adapting to challenges or barriers within the environment."[8] People evidencing ESN may not have the wherewithal to adequately adapt to the internal and/or external challenges of daily life. They may need help from their healthcare team and community to live safely at home in their community, even if they do not realize they need help or want it.

ESN is elder abuse

ESN is not just a risk factor for other types of abuse. Elder Self-Neglect is now recognized as a form of elder abuse, because of the work done by Dong and so many others. The U.S. Health and Human Services website lists ESN as abuse, along with exploitation, abandonment, and more. It is "characterized as the behavior of an elderly

Box 1. Definitions of Key Terms

Elder Abuse*	A term referring to any knowing, intentional, or negligent act by a caregiver or any other person that causes harm or a serious risk of harm to a vulnerable adult.
Elder Self-Neglect*	Characterized as the behavior of an elderly person that threatens his/her own health or safety and generally manifests itself by failure to provide himself/herself with adequate food, water, clothing, shelter, personal hygiene, medication (when indicated), and safety precautions.
Self-Awareness+	Awareness of one's own functioning, personality, or individuality.
Metacognition+	Awareness, analysis and judgment of one's own cognitive functioning
Inattention+	Failure to carefully think about, listen to, or watch someone or something; lack of attention.
Anosognosia++	An inability or refusal to recognize a deficit, defect or disorder that is clinically evident.
Judgment+	The process of forming an opinion or evaluation by discerning and comparing.

* HHS U.S. Department of Health & Human Services. How can I recognize elder abuse? 2014 [accessed 1/27/2022]. Available from: https://www.hhs.gov/answers/programs-for-families-and-children/how-can-i-recognize-elder-abuse/index.html.

+Merriam-Webster Dictionary, online [accessed 1/26/2022]. Available from: https://www.merriam-webster.com

person that threatens his/her own health or safety and generally manifests itself by failure to provide themself with adequate food, water, clothing, shelter, personal hygiene, medication (when indicated), and safety precautions."[9] For definitions of key terms presented, please see Box 1.

Dong and colleagues also found that with advancing age ESN incidence (probable risk of having ESN over time) and prevalence (actual likelihood of having ESN) are particularly high in 3 groups of people: those who are frail, women, and minorities.11,12 Communities with high prevalence of ESN also were found to experience correspondingly high rates of hospital utilization (e.g., emergency department admission, hospitalization, and recidivism), and other services (nursing home care and hospice).[13] Realizing increased morbidity (biopsychosocial vulnerabilities/illnesses) exists in senior populations in the USA, Burnett and colleagues used archived data to study a large, diverse cohort of people with ESN (N=5,686) derived from data on the Clinical Assessment and Risk Evaluation (CARE) tool that was gathered by Adult Protective Services in Houston, Texas.[14] The existence and prevalence of 4 sub-types of ESN were discovered and are noted in Box 2. The global Elder Self-Neglect group tends to be of older age, single, Caucasian, and people with mental health problems, making this group the most complex, and posing the greatest burden on health care resources. For all 4 subtypes, gender and non-white Hispanic status did not seem to significantly differ between subtypes. Mental illness (e.g., depression) was not a consistent factor across the subtypes of self-neglect. Elder Self-Neglect is not a mental illness. See Box 2.

Canaries in the coal mine

Physical therapists (PTs) and PT assistants are mandated reporters and are potential "canaries in the coal mine" when it comes to identifying the presence of self-neglect. The implications for PT assessment of ESN are made more urgent within the context of millions of ageing Baby Boomers turning 65 every year amidst limited healthcare resources. Pressure is mounting within healthcare industries to accelerate the creation of opportunities for care management and other leadership roles by licensed healthcare workers who are not physicians. Circumstances support physical therapists and physical therapist assistants expanding their knowledge of ESN so they can step into greater leadership roles that use their skill sets to better support communities. It is especially important for the physical therapy community to note that ESN increases across all subtypes when ADLs are impaired, when there is drug mismanagement, and/or when medical/health conditions are untreated.

When PTs communicate their concerns about ESN to the multidisciplinary team, diagnostic evaluations can be conducted and additional treatment options perhaps identified for the purpose of treating, educating, reversing, protecting, and securing the elder's physical, functional, behavioral, mental, cognitive, and financial health. Otherwise, the elder's ability to participate and benefit from prescribed interventions, or to accommodate or compensate for self-care difficulties and high fall risk will be undermined and greatly limited when ESN is unattended. Practical clinical approaches for addressing ESN concerns that the physical therapy profession already uses include:

1. focus on improving safety (reduce fall risk)
2. partner with patients and the interdisciplinary team to build trust and better communication
3. manage needs and risks by going into the home
4. develop an emergency plan with the patient-care team.[15]

ESN has major ramifications for elders and for their communities. People living with ESN cannot be consistently relied upon to take care of themselves in fundamental and basic ways. They are highly vulnerable to being influenced by others (with good or bad intentions), as they lack the essential and basic cognitive-based functional capacities needed to effectively recognize and problem-solve for their needs and the safety of their community. Help is needed from others with tasks such as informed decision-making (e.g., the ability to manage their medical status, reliably take medications without inadvertent under/overdosing, alert an appropriate authority about emerging problems and safety concerns, manage the demands of independent living, manage finances, and reduce their fall risk).

Doctoring healthcare professions are dedicated to supporting and protecting vulnerable people who seek health care services. In this new era of misinformation and heavy emphasis on independence and liberty, more than ever physical therapists should find ways to collaborate with other professionals to provide a deeper and bal-

Box 2. Elder Self-Neglect (ESN) sub-types and incidence factors

SN Sub-types; Prevalence	High Incidence Factors
Physical and medical ESN; 50%	Married; decreased incidence of mental and physical health problems.
Environmental ESN; 22%	African-American; cluttered homes; higher risk of falls; multiple physical impairments; untreated medical conditions.
Global ESN; 21%	Caucasian; older age (75+ years); single; mental health problems.
Financial ESN; 9%	African-Americans; young-old adults (e.g. 65-74 years)

anced understanding of what kind of support vulnerable community members need to safely thrive. All healthcare doctors should be aware of ESN; know how to assess self-neglect in clients; help ensure appropriately targeted and effective interventions are offered and made available; and engage adult protective services when aspects of individual and community safety are of real concern.

The physical therapy profession is well-positioned to identify and clinically treat the signs and symptoms of ESN, especially when physical, functional, and cognitive health domains are affected. For more information about topics directly and indirectly related to ESN (e.g., dementia's implications for physical therapy practice, ethical obligations of being a mandated reporter) consider further enhancing your awareness of ESN by completing the home study courses offered by the APTA Geriatrics. Consider too, sharing your knowledge of ESN by hosting a community event to raise awareness in your community this summer. June 15 is World Elder Abuse Awareness Day. Tools and tips that you can share with your community can be found here: https://eldermistreatment.usc.edu/weaad-home/tools-and-tips/.

Test yourself

1. Physical therapists can clinically assess (through testing and screening) for signs and symptoms of which possible condition(s) in older people seeking their professional health care services?

A. Elder self-neglect, and other forms of abuse.
B. Inattention, self-awareness, alertness, disorientation, and memory loss.
C. Delirium, cognitive impairment, and dementia.
D. Stroke, Parkinson's disease, and vascular disease.
E. All are true.

2. Which populations of people are at very high risk for Elder Self-Neglect?

A. Women and minorities.
B. People living with one or more health disabilities and/or frailty.
C. Single people and married people.
D. Elders.
E. People who are frequent fallers, frequent visitors to hospitals, and/or homeless.
F. All are true.

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Dr. Lise McCarthy is currently on hiatus from clinical PT practice. After 20 years, the pandemic necessitated she close her geriatric house calls practice. She remains an assistant clinical professor at the University of California, San Francisco, as volunteer faculty in the Department of Physical Therapy and Rehabilitation Science, teaching doctoral students about geriatric topics. In 2020, she restarted the San Francisco local chapter of the Professional Fiduciary Association of California. While she is discovering a whole new area of geriatric care as a licensed professional fiduciary, she appreciates opportunities to remain engaged with her first professional love: physical therapy.

Insulin Resistance - Hiding in Plain Sight

by Morgan Nolte, PT, DPT and Beth Smith, PT, DPT

As geriatric physical therapists, we couldn't help noticing that the people we were treating rarely had just diabetes, heart disease, or dementia. In varying degrees of severity, these conditions usually occured together. They were accompanied by both increased fat mass, and decreased muscle mass. Something was off. Chart after chart review revealed elevated cholesterol, high blood pressure, and high blood glucose. For each of these, a separate medication was prescribed, creating polypharmacy.

While the world continues to adjust to the constantly changing COVID-19 pandemic, there is another condition that has been steadily growing, largely undetected for the last several decades. A 2019 study analyzed metabolic health data such as fasting blood glucose, hemoglobin A1c, blood pressure, HDL, triglycerides, and waist circumference from 2006 - 2019 and found that approximately 88% of American adults have this condition.[1]

What could be so prevalent, yet undiagnosed? The answer is insulin resistance.

Insulin resistance is an impaired biologic response to insulin stimulation of target tissues, primarily the liver, muscle, and adipose tissue (peripheral insulin resistance) and the brain (central insulin resistance).

Insulin resistance impairs glucose disposal, resulting in a compensatory increase in beta-cell insulin production and subsequent hyperinsulinemia. The metabolic consequences of insulin resistance can result in hyperglycemia, hypertension, dyslipidemia, visceral adiposity, hyperuricemia, elevated inflammatory markers, endothelial dysfunction, and a prothrombotic state.[2]

What is causing this metabolic disease?

Insulin resistance experts like Dr. Jason Fung, author of *The Obesity Code,* and Dr. Benjamin Bikman, author of *Why We Get Sick*, shed light on the fact that insulin resistance lies at the heart of many of the diseases we treat in geriatric physical therapy.

A 2018 study found that trajectories of fasting blood glucose, body mass index (BMI), and insulin sensitivity could detect the start of type 2 diabetes 2 decades prior to its diagnosis.[3] Think of it: physical therapists attuned to wellness have the opportunity to educate and guide reversal of early risk factors caused by insulin resistance at least 20 years before disease is diagnosed. We've all heard the saying, "When the tide comes in, all the boats rise." In this case, the tide is insulin. When insulin goes down to healthy levels, all other health markers fall into place. Glucose, triglycerides, blood pressure, visceral belly fat, and small, dense LDL go down. HDL and large buoyant LDL go up.[2]

When one condition is prevented by lowering insulin resistance, we prevent many. When we prevent illness, we prevent future polypharmacy, hospitalizations, and falls. We lower the financial, physical, social, emotional, and mental toll that robs an ageing adult's quality of life. We help add years to their life and life to their years.

Factors that contribute to insulin resistance

In *The 7 Habits of Highly Effective People*, Stephen Covey's second habit is to begin with the end in mind. With reversing insulin resistance being the end, it is wise to consider what causes insulin resistance. Below are several, but certainly not all, contributing factors.

Visceral belly fat

Adipose tissue is now recognized as an endocrine organ.[4] Far from simply being a place where extra energy is stored, adipose tissue is metabolically active and plays an important role in our reproductive and immune systems.[5] Visceral belly fat releases several inflammatory substances. Low-grade chronic systemic inflammation, common in people with central obesity, is associated with the development of atherosclerosis, type 2 diabetes, and hypertension, well known comorbidities that adversely affect the outcomes of persons with COVID-19. The same chronic low-grade inflammation that contributes to more severe COVID-19 cases is what contributes to more insulin resistance.[6]

Ageing and menopause

Ageing increases insulin resistance due to a decline in lean muscle mass, which serves as a valuable reserve for glucose deposit, and increased insulin receptors. The more muscle mass one has, the more insulin sensitivity they enjoy. Women who are experiencing hormonal changes of menopause experience a rise in insulin resistance as estrogen falls.[7] Estrogen is protective against insulin resistance and visceral belly fat. Therefore, a shift in fat mass distribution towards the belly is common in middle-aged women and accelerates after menopause, as does her risk for type 2 diabetes and heart disease.

Chronic stress

There are 2 ways in which glucose may enter a cell through the GLUT4 transporter, muscle demand, and insulin. Our natural stress response is designed to help us utilize the former in preparation to fight or flee a stressor.

Cortisol will raise blood sugars so that muscles can have available energy. However, if the stress is metabolic, mental, or emotional, it will not require us to fight or flee. Instead, insulin is secreted to help shuffle the increased glucose load from the bloodstream into cells. As Dr. Jason Fung eloquently states in *The Obesity Code*, "Stress contains neither calories nor carbohydrates, but can still lead to obesity."[8]

Refined carbohydrates diet

There are 3 major categories of macronutrients: carbohydrates, proteins, and fats. While an in-depth explanation of each is beyond the scope of this article, note that all are not created equally. Certain carbohydrates, specifically refined starches and sugars, will spike blood sugar, and thus insulin. Protein has a moderate insulin response however is still essential for healthy muscles and bones. Dietary fat has the lowest insulin response. Biasing nutrition towards foods with more protein, healthy fat, and fiber will help keep insulin low.

Refined seed oils diet

While seed oils (a form of dietary fat) such as soybean, corn, canola, cottonseed, rapeseed, grapeseed, sunflower, or safflower do not immediately spike glucose or insulin, they are very easily oxidized and increase inflammation. They contribute to insulin resistance by causing fat cells to grow in size (hypertrophy), rather than number (hyperplasia). This growth in size rather than number contributes to adipose cells leaking fat and inflammatory proteins into the blood.[9]

Eating frequently and rating late

Eating small meals, or grazing, throughout the day will continuously stimulate glucose and insulin levels. Allowing several hours between meals helps the body's insulin come back down to baseline. Time-restricted feeding, also frequently called intermittent fasting, has been shown to be an effective tool to reverse insulin resistance. One study found that by shortening a person's eating window from 8 am to 8 pm down to 8 am to 2 pm, men were able to improve insulin sensitivity, pancreatic beta cell responsiveness, blood pressure, oxidative stress, and appetite.[10]

Low levels of physical activity, muscle mass, and strength

Physical activity can increase the amount of glucose needed by the muscle for energy. It may also increase the number of GLUT4 transporters in the cell, leading to better insulin sensitivity. Resistance training and adequate protein intake are 2 essential habits to build lean muscle mass.

Healthy muscle tissue acts as a reservoir for glucose in the form of glycogen. After intake of a caloric load and conversion to glucose, muscle is the primary site for glucose disposal, accounting for up to 70% of tissue glucose uptake. When glucose uptake by muscle exceeds capacity with excess calorie loads, excess glucose returns to the liver where it triggers de novo lipogenesis (DNL). Increased DNL increases triglyceride and free fatty acid production, causing ectopic fat deposition into the liver, muscle, and adipose tissue. This explains the 2020 findings that low muscle mass and low muscle strength were positively and independently associated with non-alcoholic fatty liver disease (NAFLD).[11]

Other factors that contribute to insulin resistance are explained further in a 2-hour lecture that was presented to Doctor of Physical Therapy students at the University of Nebraska Medical Center. You can search "What is Insulin Resistance and Why Does it Occur Dr. Morgan Nolte" on YouTube to learn more.

Signs and symptoms of insulin resistance

Often signs and symptoms are detected in annual physical exams but they are not yet linked to insulin resistance. Below are the major signs and symptoms of insulin resistance.[9, 12]

- Elevated fasting insulin: Greater than 6 µU/mL.
- Excess abdominal fat: A waist circumference of greater than 40 inches for men or 35 inches for women.
- Elevated blood pressure: Greater than 130/85 mmHg or drug treatment for hypertension.
- Elevated blood glucose: Greater than 100 mg/dl or drug treatment for hyperglycemia.
- Elevated blood triglycerides: Greater than 150 mg/dl or drug treatment for elevated triglycerides.
- Low HDL cholesterol: Less than 40 mg/dl for men or 50 mg/dl for women or drug treatment for low HDL-C.
- Skin tags, especially around the neck or underarms, or patches of darker skin.
- Water retention.
- Family history of heart disease.
- Family history of insulin resistance or diabetes.
- Polycystic ovarian syndrome (PCOS) in women or erectile dysfunction (ED) in men.
- Joint pain and inflammation.
- Brain fog.
- Poor sleep quality or duration.
- Frequent carb or sugar cravings.
- Fatigue or energy fluctuations throughout the day.

Health conditions attributed to insulin resistance

If one would like to learn more about the physiology behind how insulin resistance directly contributes to the following conditions, *Why We Get Sick* by Dr. Benjamin Bikman is an excellent resource. Dr. Bikman clearly outlines how insulin resistance contributes to:

- Cardiovascular disease including stroke, heart attack, and vascular disease
- Alzheimer's disease
- Vascular dementia
- Parkinson's disease
- Cancer, especially breast, prostate, or colorectal

- Osteoarthritis
- Diabetes
- Polycystic Ovarian Syndrome
- Erectile Dysfunction
- Reduced Bone Mass
- Sarcopenia

Whether you work in home care, acute care, outpatient, inpatient rehab, wellness, or another setting, insulin resistance casts a wide net. It may be impacting you or a loved one. Sharing information about insulin resistance in the right way, at the right time can improve physical therapy outcomes by reducing weight, inflammation, and pain, while boosting energy and mental clarity.

Testing for insulin resistance

While fasting blood glucose or hemoglobin A1c are the tests most commonly used to diagnose diabetes, there are other tests that may be more helpful as insulin resistance occurs long before blood glucose levels become elevated.

The Oral Glucose Tolerance Test (OGTT) is an assessment of how the body responds to a measured amount of glucose, usually 75 grams. Normally, blood sugar goes up, then comes down over the next several hours, but with prediabetes or type 2 diabetes, blood sugar will take longer to come down. However, this test is still only beneficial after insulin resistance has occurred long enough to cause blood glucose elevation.

The Kraft test is better than the OGTT. It is a test that measures both insulin and glucose response after a meal. In this test, you drink 75 grams of glucose, then measure insulin and glucose after 30 minutes, 1 hour, 2 hours, and 3 hours. Normally, the insulin curve would follow the glucose curve. However, in individuals with insulin resistance, insulin levels peak quickly but the glucose curve may or may not be elevated. Over time, the pancreas will not be able to keep up with insulin production, which leads to elevated blood glucose and type 2 diabetes. Incorporating a test like the Kraft test that includes insulin response may allow earlier detection of and intervention for diabetes.

A 2018 study concluded that using fasting glucose, the oral glucose tolerance test (OGTT), and A1c may not be the most effective early screening tool for type 2 diabetes. Thus, incorporating fasting insulin and especially insulin assay after an OGTT (Kraft Test) as enhanced screening methods may increase the ability to detect diabetes and prediabetes, allowing earlier intervention to prevent diabetic complications.[12]

Other helpful tests include a simple fasting insulin test, with desired results less than 6 µU/mL. If one is able to get fasting insulin and glucose together, they can calculate their homeostatic model assessment (HOMA) score

The HOMA score is determined with the following equation: [Glucose (mg/dL) × Insulin (µU/mL)] / 405 (for the United States) or [Glucose (mmol/L) × Insulin (µU/mL)] / 22.5 (for most other countries). Though there's no consensus yet, a value over 1.5 indicates insulin resistance, and above 3 usually means borderline type 2 diabetes.[9]

What can you do?

Physical therapists are in a unique position to develop relationships with the people we serve. We can address how signs and symptoms of insulin resistance may be contributing to other more "typical" physical therapy issues, including joint pain and inflammation. We can also provide tips (see below) and strategies for lifestyle changes to help lower insulin resistance and prevent chronic disease.

Losing weight can be a difficult topic to discuss. Reframing the conversation away from weight, discussing how their "physical therapy issues" are linked to insulin resistance can create an opening to start this conversation and initiate lifestyle changes. We can easily add a simple question or two into our evaluation to screen for signs and symptoms of insulin resistance.

Consider these phrases to start a conversation about insulin resistance:

- "Have you noticed…?"
- "Do you think there could be a link between…?"
- "What are your thoughts on…?"
- "Tell me more about…?"
- "What have you previously tried for…?"
- "Help me understand…"
- "Have you considered…?"
- "When was the last time you had your blood numbers checked?"
- "I see you're taking a medication for blood sugar; do you know your last A1c?"

These (mostly) open-ended phrases can help initiate compassionate conversation and provide an opportunity to provide education without judgment.

Tips to lower insulin resistance with lifestyle

- Eat mostly whole, real, unprocessed foods with limited added sugar, refined starches, and processed seed oils.
- Eat fewer larger meals rather than several small meals or snacks throughout the day to allow longer periods of time where insulin and glucose are normal between meals. Consider time-restricted feeding. Even a 12-14 hour fast each day can make a difference, such as 7 pm to 7 am.
- Aim for 25-35 grams of fiber per day.
- Eat at least 20-30 grams of high-quality protein with each meal to support satiation and healthy muscles.
- Eat more healthy fats and reduce unhealthy fats.
- Get at least 7 hours of sleep each night. Consider wearing blue-light blocking glasses in the evenings for improved sleep quality.

- Be intentional about implementing stress management techniques to decrease cortisol.
- Get regular physical activity and prioritize strength training. We recommend strengthening all major muscle groups at a moderate to high intensity 3 days per week.

The battle rages on - Insulin resistance and COVID-19

As we continue to navigate COVID-19, it's important to recognize recent research that shows clear relationships between COVID-19, diabetes, and insulin resistance. Persons with COVID-19 can progress to new-onset diabetes or have acute complications of pre-existing diabetes, including hyperosmolarity and diabetic ketoacidosis.[14]

Elevated plasma glucose levels and diabetes are independent risk factors for mortality and morbidity in patients with COVID-19. Consideration needs to be made that these could reflect, at least in part, a state of insulin resistance and elevated insulin levels that are increasing disease severity.[14]

Acute viral respiratory infections are associated with the rapid development of transient insulin resistance in normal and overweight individuals. Considering insulin is a main hormone responsible for body fat levels; there is truth to the "COVID-19" weight gain.[15]

[Editor's Note: As a helpful resource, the authors have included a free hour-long training about prediabetes and insulin resistance that you can view on YouTube by searching "Top Foods to Lower Blood Sugar Naturally Dr. Morgan Nolte."]

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HOP-UP-PTs! Home-based Prevention Care to Facilitate Safe Ageing in Place

by Christopher Wilson PT, DPT, DScPT; Sara K Arena PT, DScPT; and Lori E Boright PT, DPT, DScPT

Disclosure: Drs. Wilson and Arena are co-principals of HOP-UP-PT, LLC

A new treatment paradigm entitled Home-based Older Persons Upstreaming Prevention Physical Therapy (HOP-UP-PT) has been a multi-year research initiative that began at Oakland University in Rochester, Michigan. The initial inspiration was that municipal senior center staff members have a unique perspective and relationship with older adults in their community and could identify physical decline in older adults. The senior center staff voiced a need to be able to simply call up a local physical therapist (PT) in their community and have the PT go into the home and mitigate the various issues that might be causing the physical decline. After several research projects culminating in a 144-person randomized controlled trial demonstrating clinical effectiveness and feasibility, it was determined that the next step was to build the capacity to train PTs in this new treatment paradigm. As the approach is markedly different than that of impairment-driven rehabilitative PT services, a company was established (HOP-UP-PT, LLC) to certify the therapists in the HOP-UP-PT protocol via a certification process and assist in building relationships between certified PTs and local community partners.

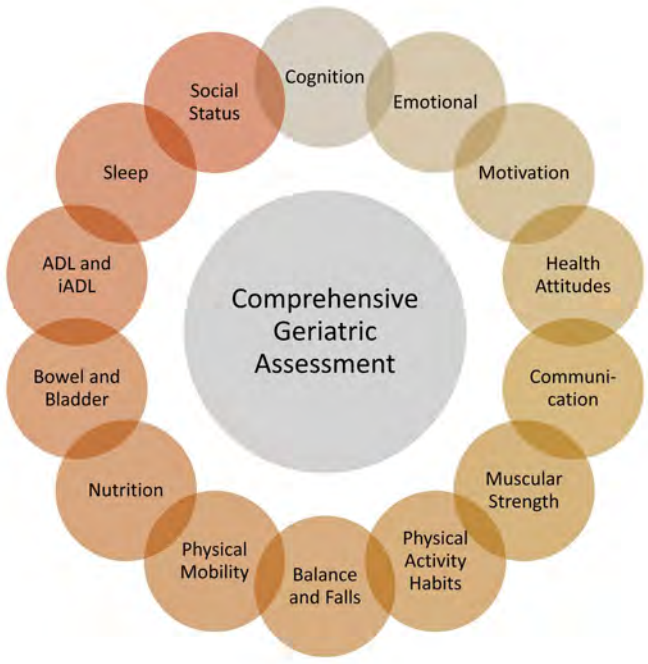


Figure 1. Comprehensive Geriatric Assessment
Key: ADL = activities of daily living

Successful ageing through comprehensive assessment and treatment

The relentless facilitation of successful ageing is a key aim for those who provide care to older adults. Defined

by Rowe and Kahn, successful ageing includes low risk of disease and disease-related disability, maintenance of high mental and physical function, and continued engagement with life.[1] As there are a wide variety of health domains that interact, they all must be assessed or monitored to address a person's overall health, safety, and wellbeing – frequently termed a comprehensive geriatric assessment (CGA). The CGA is a person-centered, holistic, integrated approach that closely examines and objectively assesses the multiple and interdependent conditions that may impact an older adult's ability to safely age (Figure 1).[2,3] As not all these domains of health are routinely assessed by PTs, this paradigm shift will require an updated approach and a more broad and holistic assessment.

Specifically, the American Physical Therapy Association's (APTA's) policy titled *Physical Therapists' Role in Prevention, Wellness, Fitness, Health Promotion, and Management of Disease and Disability* (HOD P06-19-27-12) details the role of physical therapists as contributors in prevention-focused care approaches.[4] The policy asserts that PTs are well positioned to serve as a "dynamic bridge between health and health services delivery for individuals and populations" and are capable of adapting "tasks and the environment to promote healthy behaviors and improved health outcomes for individuals and populations of all ages, including those with complex health and functional needs, as part of a community-based integrated team." This is well aligned with the population health approaches of successful ageing- in- place and CGA concept. Physical therapy practitioners have a unique and important role to bring about change in social, environmental, and structural factors on the health of populations of those they serve. A recent publication by Magnusson and Rethorn serves as a call to action for PTs to address individuals and communities using a health-promoting mindset.[5] Additionally, physical activity, nutrition and weight management, smoking cessation, sleep, and stress management have been suggested as key areas for which PTs can provide valuable knowledge and skills to promote positive health behavior change.[6]

To understand the PT's role in prevention and corresponding strategies to varied approaches it is important to first consider prevention levels (Figure 2).[7] While traditional physical therapy care models have focused on tertiary prevention, a paradigm shift to primary and secondary prevention mindsets are necessary to best deliver prevention-focused care aimed at successful ageing.

The HOP-UP-PT program is a multimodal fall prevention systematic approach delivered by PTs in the homes of older adults.[8] HOP-UP-PT has a vision of empowering seniors to stay safe and active in their homes and communities and a mission to provide early preventative interventions to older persons at risk of being homebound by facilitating partnerships between community centers and local PTs. The program consists of 6 in-person and 3 tele-rehabilitation visits over the course of a 7-month time frame with both primary and secondary prevention focus (Figure 3). Participants receive comprehensive health and fall risk assessments and a home environment safety

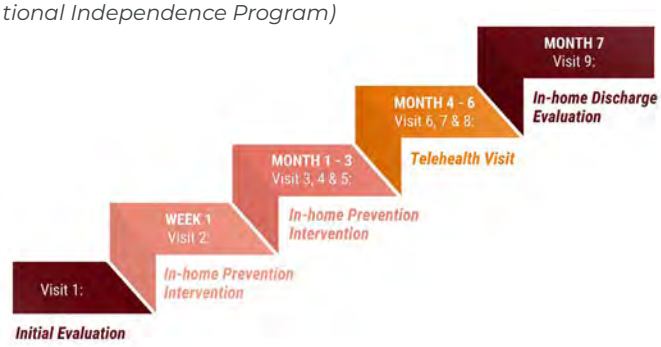
Figure 2. Levels of Prevention

evaluation. Additionally, participants are provided an automated blood pressure cuff and an activity monitor to assist in their self-monitoring capabilities. An individualized balance exercise and walking program based on the Otago Exercise Program (OEP), motivational interviewing strategies to address person-centered health behavior change, and referrals to other medical professionals when needed and indicated are also provided to participants. Results of a randomized controlled trial on the effects of HOP-UP-PT participation elucidated an 8-fold decrease in fall risk for older adults in moderate and high fall risk categories.[9] Additionally, statistically significant improvements in fall risk metrics including the Timed Up and Go and the Four Stage Balance Test were observed for participants of HOP-UP-PT.[10]

Key components of prevention-focused home-based services

Although some of the physical measures performed by PTs in a primary or secondary prevention-focused approach are like those of rehabilitative models (i.e., tertiary prevention), there are substantive key differences. Many of these participants may have chronic conditions; these issues will not have advanced or exacerbated to cause significant functional limitations. In the authors' experience, some physical therapists who do not have a prevention-focused mindset may not be able to efficiently adapt their care philosophy when an older adult is functioning "fairly well" and that there is "nothing majorly wrong with them that needs the skill of a PT." This prevention-focused approach requires the PT to think and act holistically to identify each older adult's individual vulnerabilities and provide prevention-focused care. When educating PTs on how to approach the management of the older adult, a mnemonic of *RIMES – Refer, Intervene, Monitor, Educate, Stop* may be helpful (Box 1).

Figure 3. Timeline, HOP-UP-PT Core Program (aka Foundational Independence Program)



Direct access and an open referral process

A major paradigm shift for prevention-focused, upstream care for older adults is the concept of open referrals, nontraditional referrals, in some cases self-referrals. Certainly, a proactive physician can refer for prevention-focused physical therapy but it is not standard practice for PTs and physicians to have a mutually understood referral pathway for prevention services, even if well-established referral pathways are present for impairment-based rehabilitative physical therapy. A packaged and marketable program becomes beneficial: a physician can simply refer the patient to the *program* and all of the procedures and processes it entails (e.g., Evaluate and treat – HOP-UP-PT program).

In prevention-focused programs, the process of open referral process involves accepting nontraditional referrals from a variety of sources. It is always imperative that referral sources obtain the older person's permission to refer or initiate the process. Additionally, due to the possibility of multiple referral sources, there may be advantages to funneling all referrals through a single person or organization to provide improved familiarity and efficiency with the referral processes. For example, within the HOP-UP-PT program, although healthcare providers,

Box 1. RIMES Approach for Management of Individuals with Multiple Conditions

Therapist Action	Example
R = Refer	A nutritional assessment identifies pain with chewing. The PT refers the patient to their dentist for further examination.
I = Intervene	The person scores a 29 on the Berg Balance Scale. The therapist provides skilled prescription and administration of balance exercises with close contact-guard assistance.
M = Monitor	Blood pressure was 123/85 and the patient is on hydrochlorothiazide/lisinopril (Prinzide) 10/12.5 mg. The PT monitors the blood pressure each visit to assess for continued efficacy of the medication.
E = Educate	Several home hazards are identified including throw rugs on the floor and frequently used items on high shelves. The PT provides education on home modifications and fall prevention.
S = Stop	The older adult verbalizes that she needs glasses to drive but they have been misplaced. She is advised to stop driving until they are found, and the PT helps facilitate a phone call to the patient's daughter to arrange transportation to the optometrist to get new glasses.

older adults, and family members can refer into the program via a centralized website, the foundational means of referral is through a municipal senior center staff member and the various professionals and volunteers who they interact with. These include public safety professionals (fire, police, emergency medical services), Meals on Wheels drivers, book club facilitators, and fitness instructors (Figure 4). As these referrals are "crowdsourced," a central organization is beneficial to coordinate between referral sources and local physical therapists who are already trained in aspects of this approach or a PT willing to pursue and obtain advanced training.

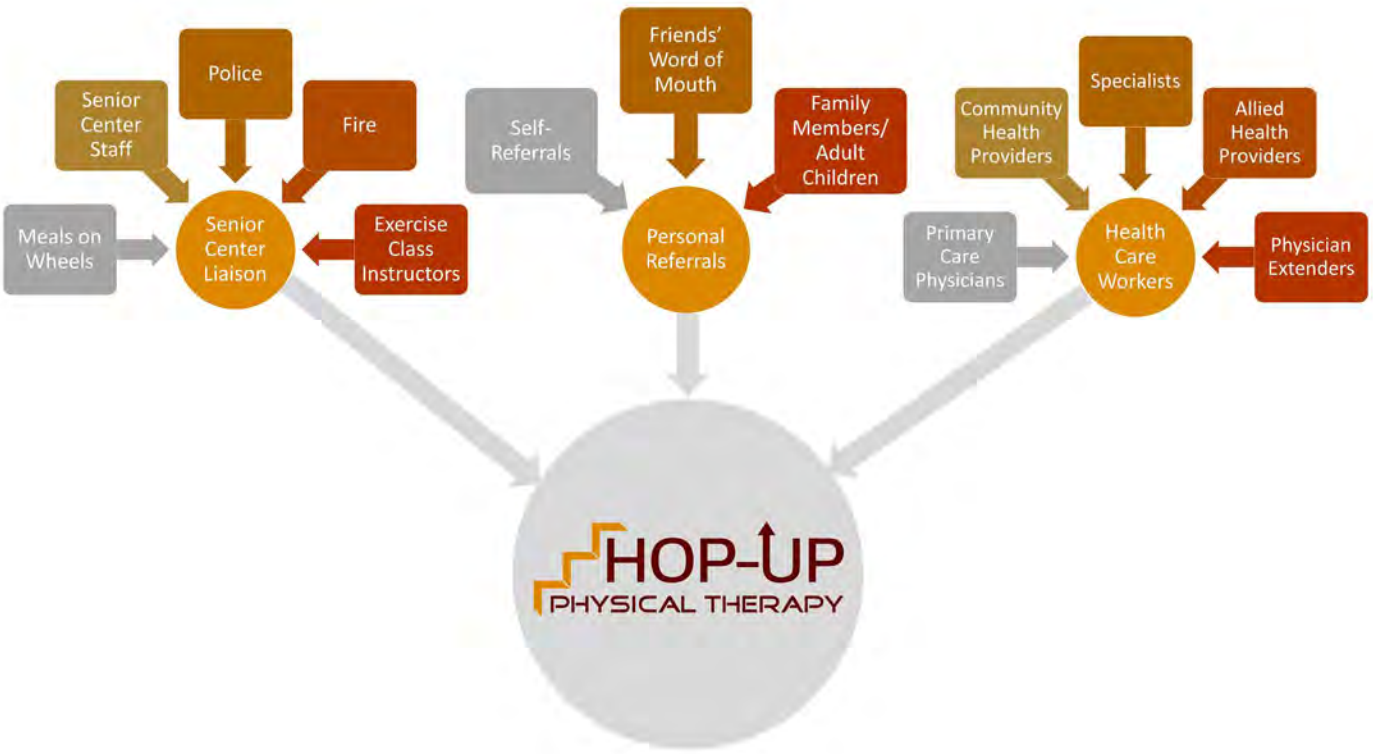
Building trust through competence and credentials

This is a novel approach and application of PT skills. Stakeholder confidence is established and maintained through advanced training and earned credentials. This is especially important as physicians, family members, and friends are often protective of their older acquaintances from scams or ineffective or fraudulent healthcare delivery. A certification or professional credential and an affiliation with a reputable entity can help to bolster confidence in the services provided. In early iterations of the HOP-UP-PT program, local PTs were trained via an in-person continuing education seminar with a knowledge assessment. More recently, this training course has transitioned to an asynchronous online format. Certification in the specifics of the HOP-UP-PT base program (aka the Foundational Independence Program) is completed via a series of 8 30-minute online courses that are hosted on the organization's website for a fee of $200. The therapist is then recognized as a certified HOP-UP-PT provider. A certified PT will then be listed on the HOP-UP-PT website as a certified provider and as seniors are referred by their local community centers (or by other means) to the HOP-UP-PT program, they would be referred to the certified therapist. The HOP-UP-PT organization routinely audits course content for accuracy and translation. The HOP-UP-PT staff will also assist in facilitating and fostering partnerships between community centers and certified PTs. Other beneficial training that will help increase a PT's skills in this area are Board Certification as a Geriatric Clinical Specialist and the Academy of Geriatric Physical Therapy's Certified Exercise Expert for Ageing Adults (CEEAA) program. Finally, an important component of all these credentials is that underlying training is solidly rooted in evidence-based practice that is backed by a substantial firm body of literature.

Leverage the opportunity to evaluate the person in their regular environment

Most falls among the elderly happen in the home. When people experience more functional limitations, they often spend more time at home.[11] If the home setting is not conducive to engaging with the community and easily leaving the home, a cycle of a sedentary lifestyle and progressive functional limitations are more likely to occur. The HOP-UP-PT program is aimed at older adults who are functional but are at increased risk of becoming homebound or falling. Each of the 6 in-person visits are delivered by the PT in the individual's home so that education, interventions, and services are provided in the person's

Figure 4. Examples of Non-Traditional Referral Mechanisms



regular environment. A key component of the HOP-UP-PT program is continuing to support healthy action steps through a home exercise program and health behavior changes. It is hypothesized that these behaviors would be more likely to be adopted if the specific barriers that may limit ongoing performance in the home can be proactively mitigated in the actual environment where performance will occur. Although not all prevention-focused PT services need to be delivered in the home, in order to provide person-centered upstream care, the home environment must be addressed and optimized at some point in the process.

Utilize currently available payment means

Many older adults are covered by Medicare health insurance; this is the most common payment means for PT services. Medicare is not historically utilized for primary or secondary prevention-focused PT services. Medicare Part B covers PT services that are not administered in the hospital, inpatient rehabilitation unit, or a skilled nursing facility (these services are covered under Medicare Part A). Older adults utilizing a HOP-UP-PT program are not deemed homebound; they are able to leave the home safely and effectively. Medicare Part B is a well-established payment means despite not being traditionally billed outside of the outpatient clinic. An important consideration is that there is no legal requirement that the PT services must be delivered in an outpatient clinic; services can also be delivered in the home as long as the person is not homebound (as this would be covered under the Medicare Home Healthcare Benefit.)[12] A concern is that although Medicare Part B payment is feasible when delivered in the home, it is not clear whether this payment approach will fully cover the costs of care due to the lower payment amount generally provided under Part B. Although the HOP-UP-PT program is recommended to be delivered in the home setting for all in-person visits, some aspects of prevention-focused care may also be delivered in an outpatient setting.

Most rehabilitative care is considered tertiary prevention. Nearly every older adult has a chronic condition, movement disorder, functional limitation, or is at risk of developing a health issue. This is where the PT's skill and meticulous evidence-based assessment can provide thorough evidence of any deficits and connect these deficits to current and future health and safety risks. This assessment will provide evidence in the medical record of the issues that are likely to occur. This is an area where intricate knowledge of normal age-related changes and pathological ageing can behoove the therapist, especially as ageing is a progressive condition with increased likelihood of developing both functional limitations and medical health conditions – many of which can be mitigated with PT interventions or referrals. These services are certainly billable and warrant the skill of a licensed physical therapist if they are well documented in the medical record including justification of a less traditional, more sporadic frequency of visits.

Embrace a non-episodic care mindset

One of the traditional practice models of rehabilitation is the pattern of frequent visits over a relatively short period of time (e.g., 3/week x 4 weeks). This model has limited applicability in the management of those with evolving, chronic, or early stages of life-limiting conditions. These individuals require ongoing, periodic assessment with early intervention. The dental care model may serve as a useful example. Most people do not leave their dentist's office without being prompted to make their next appointment in several months, even if there were no issues identified on the visit. The dental system emphasizes routine proactive, preventative assessments for our teeth, but the traditional healthcare model in the United States does not routinely endorse the same level of vigilance for our body's movement system. Especially as it relates to health behavior change and adoption of new health habits, the intensive, short duration episodic model is not well aligned with early intensive coaching and progressive withdrawal of external support as intrinsic motivation and routine begin to take over.

Leverage technology but be ready to coach!

With the longitudinal care philosophy of PT visits in the home-based prevention model, there are large durations

of time where the older adult may not be in direct contact with a therapist. The PT will not be there to provide encouragement, assist in mitigating evolving barriers to health behavior changes, and provide motivational reminders. Technology can provide a viable adjunct to direct PT services.

The HOP-UP-PT program has employed 4 main areas of health technology:

1. wearable activity monitor (Garmin VivoFit 4™)
2. a tablet (iPad 8™)
3. automated blood pressure cuff (Omron HEM-712C Automatic Inflation Blood Pressure Monitor; Omron Corporation, Kyoto, Japan™);
4. a comprehensive website with freely available resources and educational videos (www.hopuppt.com).

If the participant has a reasonable replacement for one of the items, they are encouraged to use the technology that they already possess. The activity monitor is beneficial to help the older adult set personal goals related to walking for aerobic exercise; it can be synced to the manufacturer's app via the tablet's Bluetooth to track ongoing progress. In addition, the wearable activity monitor can provide helpful reminders to get up and walk. The tablet can also be used for a variety of other purposes including any number of health applications for healthy eating, smoking cessation, as well as accessing the HOP-UP-PT online resources that are recommended. Finally, the tablet or a personal smartphone can be used for telehealth visits with the therapist on an as needed or regular basis via HIPAA compliant encrypted video conferencing applications.

Some older adults may be quite technologically literate while others may not be able to easily navigate some of these devices. Some may already have technology usable for health applications (e.g., smart watch, smart phone, tablet, computer). The PT should be ready to assist in health technology coaching; there is a free technology literacy algorithm and resource page that therapists can use and access within the HOP-UP website. A rapidly growing library of instructional videos exists for many commonly used devices. Full support of successfully aging requires physical therapists to embrace the technology to be a health coach in this area as well.

Complete the loop back into the community

There are often a wide range of resources available to help elders stay engaged in their community and safely age in place. Services will vary substantially between communities; physical therapists should have a working knowledge of the resources, contact information, and specificities of local community senior centers. Meeting with key senior center personnel and touring local senior centers will be helpful to individually tailor the services to the needs of each participant as well as to build a referral base. Example resources may include Meals on Wheels, reduced cost home repairs, group exercise classes, tax preparation services, and social interactions (e.g., book clubs, movie night, holiday lunches). In some communities, local religious institutions or other community organizations may offer these services as well. Much of the 9th and final regular visit of the HOP-UP-PT protocol is focused on identifying and facilitating an older adult's engagement with the community to continue to support them as they age in all domains of health and wellbeing.

Conclusion

Prevention-focused approaches can improve the value of healthcare delivery while simultaneously improving the quality of life in older adults. There is evidence for utility of PT-led programming when using an evidence-based CGA to direct holistic interventions capable of addressing the broad spectrum of geriatric health needs. Specifically, HOP-UP-PT has an approach that is in line with the APTA position of creating a bridge between health and health services delivery for individuals and populations using a non-traditional partnership between community centers serving older adults and prevention-minded PTs. The physical therapy profession is well positioned to embrace a prevention focused paradigm shift through leadership as gateway healthcare providers with targeted approaches that empower older adults to stay safe and active in their homes and community.

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PT Day of Service 10/09/2021

by Vishakha Hiremath, PT, MHS
Geriatric State Advocate-Indiana

The COVID-19 pandemic has affected all determinants of health. We are all aware of the difficulties we faced and are still fighting it every single day. Navigating social isolation was one of the major challenges, I faced as an individual. As a physical therapist who works with seniors/elders, I have witnessed indirect health consequences from COVID-19. I have personally spent time with seniors who longed to see my mask and shield clad face each day due to the social limitations and restrictions. I have come to realize that some days helping the seniors get in touch with their family virtually and just staying back after treatments during meals meant a lot to them. Thereafter, I was looking for volunteer opportunities that specifically catered to the geriatric population.

Fortunately, in March 2021, I signed up to be a Geriatric State advocate for Indiana through APTA's Academy of Geriatric Physical Therapy. A geriatric state advocate program is a group of motivated physical therapists from each state across the country that volunteer their time to connect with local leadership and APTA Geriatric academy members to advocate for optimal ageing. One of my goals was to create an event with global outlook and realized that this was the best time to address isolation/loneliness. I am grateful for a successful collaboration with Hannah Enochs, chair of the service committee at APTA Indiana chapter, wherein we decided to reach out to a wonderful organization: Letters Against Isolation (LAI). LAI is a nonprofit organization fighting senior loneliness one letter at a time.

Ellen, the gracious volunteer coordinator at LAI helped me navigate and plan for this group event that we created for the Physical Therapy Day of Service (PTDOS) on October 9, 2021.I instantly signed up as a volunteer and was able to spread the word on my personal social media accounts. Hannah successfully organized an in-person meeting to write letters with some volunteers. Furthermore, after witnessing the impact of writing these letters, I was driven to share this experience with colleagues from the state advocate program. I was amazed at the wonderful response and support from my fellow state advocates from all over the United States. We were able to successfully send 25 letters internationally to nursing homes in Canada, the United Kingdom and Australia. In addition, approximately 175 letters were written to various addresses in the United States.

I am grateful for this opportunity to plan, collaborate and complete such a meaningful service-related event especially considering the challenge to come up with a socially distanced event. It is indeed rewarding to contribute and witness the impact this organization has on various seniors. LAI has sent over 250,000 letters and cards to seniors during the pandemic. It has served 17,500 seniors and has a community of 16,500 volunteers from 15 countries around the world.

You can sign up as a volunteer and send seniors around the world handwritten letters filled with joy at lettersagainstisolation.com.

At Risk to Decline – a PT Responsibility?

by Jennifer Howanitz PT, DPT; Michael Pechulis PT, DPT; Lauren Reightler, OTR/L, OTD

Editor's Note: This clinical case commentary was part of content for the March 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. Register to join us or view archived recordings at geriatricspt.org/journal-geriatric-physical-therapy.

Line 3B of the Code of Ethics for the Physical Therapist states: "Physical therapists shall demonstrate professional judgment informed by professional standards, evidence (including current literature and established best practice), practitioner experience, and patient and client values."[1]

The following patient case represents situations physical therapists routinely encounter in US hospital environments. It explores applying outcomes used in the study: Menezes KVRS, Auger C, Barbosa JFS, Gomes CS, Menezes WRS, Guerra RO. Trajectories and Predictors of Functional Capacity Decline in Older Adults from a Brazilian Northeastern Hospital. *J Geriatr Phys Ther*. 2021;44(2):82-87. doi:10.1519/JPT.0000000000000255.[2]

Menezes et al. determined it is beneficial to identify people at risk of decline in function as early as possible in an inpatient stay to provide support to the patient to prevent deterioration in mobility. Utilization of screening tools to identify functional capacity change is common in the United States. However, in the US healthcare system, screening tools are more commonly used to predict post-acute discharge needs versus the amount of rehabilitation support a patient needs during hospitalization.[3] The research paper identified additional impact factors that are predictors of functional decline: advanced age, dependence in IADLs, low levels of cognition, the presence of depression, and limited in-hospital mobility. How these factors are assessed and monitored in patients can make a difference in an outcome.

Patient Case

MP, an 82-year-old male, presented to a community hospital with increasing left leg pain 3 days after being diagnosed with left LE cellulitis; he was prescribed antibiotics. The diagnosis at admission was worsening left lower extremity cellulitis.

Prior Medical History: MP has a PMH significant for CAD s/p CABG (2007); metal stent on RCA (2016); paroxysmal Afib on Eliquis; venous insufficiency; chronic lymphedema; bilateral carotid artery stenosis; renal artery stenosis; HTN; HLD; prior traumatic SAH (2013); Right hip replacement (2016); TIA (transient ischemic attack); Mobitz type 1 second degree atrioventricular block.

Height: 5'8"; 240lb; 3+ Lower extremity edema, Left lower extremity gauze wrap for wound

Social History: MP demonstrates modified independence using a rolling walker for functional mobility; his spouse assists "as needed" for activities of daily living. He resides, with wife, in a ranch home with 2 steps to enter. He plays the clarinet and enjoys listening to classical music. He has supportive family; wife and daughter were at bedside daily while MP was hospitalized.

Hospital course

Day 2: He was seen for a physical therapy (PT) evaluation and treatment (prior to planned vascular intervention). He scored 13/24 on the AM-PAC, required maximum assistance for functional transfers; he was walking in the room with a rolling walker and minimum assistance. He declined suggestions for discussing inpatient rehabilitation. He was oriented and joking with the physical therapist and agreed to placement on a therapy caseload while hospitalized.

Day 4: He scored 13/24 on the PT administered AM-PAC, required maximum assistance for functional transfers, and was walking in the room with a rolling walker and minimum assistance. Orientation not evaluated.

Day 5: Vascular studies were completed; he underwent L LE angioplasty with 2 stents.

Day 6-7: He developed increasing pain in his LLE. PT continued to follow him as medical status allowed during hospital stay.

Day 8: Reassessed by PT with AMPAC 7/24 (reflecting need for maximum assist for transfers and all mobility); was oriented only to person/place (not time or situation), still alert and interactive but becoming confused, decreased accuracy of following commands noted despite increased prompting (50-75%).

Day 13: Urgent transfer, direct admit to a medical surgical floor, to tertiary care hospital with concern for worsening cellulitis, decreasing mental status. ICU admission 4 hours post transfer when unable to protect his airway and there were concerns of aspiration. Started treatment with humidified high flow oxygen.

Day 15: PT scored AMPAC at 6, MP was obtunded and not able to participate in cognitive testing or to follow commands, RASS -3.

Day 16: Intubated; medical status and arousal precluded mobility until day 21

Day 21: extubated; PT and occupational therapy (OT) co-treating session; AMPAC 7. LE heavy from cellulitis (foley leaves indentation on thigh and leg); global muscle weakness from immobility, oriented x 1, CAM-ICU+, maximum assist x2 for all bed mobility and transfer to edge of bed; 70% FIO2 at 50L/min

Day 22-28: 4 PT visits in 7 days completed post-extubation and focused on mechanical lift bed>chair for pulmonary toilet and cognitive stimulation. He remained disoriented but no delirium was noted at end of ICU therapy sessions. Nursing recommendation for mobility was use of mechanical lift bed <> chair BID (unclear compliance with this plan).

Day 29 – 31: 2 PT visits in 3 days while O2 needs decreasing (AMPAC 10/24 at ICU discharge); he required max assist for all transfers without device.

Day 32-37: Transferred to Med-Surg floor; completed 2 therapy visits in 7 days; visit 1 cotreat PT and OT (AMPAC 6) and the second visit PT moderate assist for transfers (AMPAC 11/24). MP continued to be disoriented, waxing and waning delirium noted, no outcome measures completed for cognition. Family was frustrated but agreed to rehab because of difficulty of transfers (single, slightly built caregiver).

Day 38: D/C SNF

MP's story was selected for this case presentation because his course of care is similar to many patients that present to acute care physical therapists. MP arrived at the hospital walking. After a series of medical failures, he was unable to return to his prior level of function. Researchers in Brazil have identified similar concerns about older patients in their care. Their recommendations are to identify those at risk early to help clinicians implement interventions to maintain or recover functional capacity. In the United States early screening measures are becoming a standard of care. The AMPAC "6- clicks" is a tool familiar to many US acute care therapists and it was utilized in MP's care. Unfortunately, despite early and frequent utilization of the AMPAC "6 clicks", MP was not able to avoid a significant functional decline. In MP's case his initial AMPAC "6 clicks" score supported impaired mobility. Ongoing follow up by physical therapy during his stay was recommended and several visits were provided but by day 8 of the hospital stay MP was confused and required maximum assistance. Reflecting on his course, utilization of a screening tool was not enough. Additional factors highlighted by the researchers, if employed during the initial phases of the hospital course, may have impacted outcomes. Two specific factors considered in this discussion are cognitive assessment and in-hospital mobility.

*Days not listed were comprised of standard nursing care and no physical therapy services.

Cognitive assessment

Cognitive assessment is an area of United States acute care physical therapy practice that is typically defined by the use of the alert and oriented scale. In the article, the Leganes Cognitive test was utilized to assess cognition. More commonly utilized tools, in the US, are the Montreal Cognitive Assessment (MOCA)[6], The Saint Louis University Mental Status exam (SLUMS)[7], and Confusion Assessment Method(CAM)[8]. However, the frequency of using these tests by physical therapy is low.[9] More specific assessment of cognitive impairment would alert therapists to patients that are at risk for cognitive changes that can affect functional mobility. A person that presents with cognitive limitations that impact their ability to manage IADLs such as finances and medications will

	Assessments						
Hospital Day	Orientation	AMPAC-Mobility	RASS4	CAM-ICU5	Response to Commands	Mobility or Balance Outcome	Mobility Plan
2	X3	13			100%	No	No
4	NR	13			NR	No	No
8	X2	7			50-75%	No	No
15	Unable	6	-3		0%	Gait speed as goal	No
21	X1	7		+	75%	No	No
22 to 28 (4 visits)	X2	7			90%	No	OOB to chair with lift 2x/day
29 to 31 (2 visits)	NT (only report person)	10			90%	No	OOB to chair with lift 2x/day
32 to 36 (1 visit)	NT	7			90%	No	No
37 to 38 (1 visits)	NT	11			90%	No	No

have a lower cognitive reserve; they may be impacted more significantly by sleep disruptions, utilization of pain medications, as well as anesthesia use during procedures.[10] Without a clear picture of MP's baseline cognition, it is also difficult to assess when underlying cognitive impairments may have been replaced with delirium. As MP's function further deteriorated, occupational therapy began to utilize the CAM-ICU which was positive for delirium. Earlier identification of delirium/change in cognitive function may have allowed decisions to be made to increase intervention frequency to combat both cognitive and functional deterioration.

Hospital mobility

Hospital mobility can be defined as any activity that mobilizes the patient. Regular mobility during hospitalization has been found by the Brazilian researchers to have a protective effect against longitudinal decline in functional capacity. Additional research also supports the importance of in-hospital mobility.[11] There are efforts, in this country, to establish daily mobility goals for patients in the acute care environment. Some organizations utilize the John Hopkins Highest Level of Mobility (JH-HLM) tool.[12] JH-HLM triggers a mobility assessment of the patient daily, establishment of a daily mobility goal, and documentation to support if the goal was met.[13] In MP's case, there was no documentation to support he was mobilizing outside of physical therapy visits, which totaled 4 in the first thirteen days of hospitalization. It is unclear what affect the increased mobility would have been for MP. In his case, increasing mobility is a clear opportunity to modify his course of care.

Application of the findings from the Brazilian research study go beyond MP's case. While patients similar to MP frequently present to acute care therapists and translation of the research recommendations can be clearly understood through MP, additional reflection on the deeper issues facing geriatric care should not be ignored. Clinicians have the ability to use screening tools to identify patients at risk for functional decline, but the ability to provide early intervention is elusive. It happens in practice that resources are lean to provide interventions; deployment of therapy resources at times is prioritized related to discharge destination versus risk for functional collapse. The deeper issue, now that we can identify those at risk, is to determine how can healthcare systems throughout the world coordinate resources to support geriatric patients in the acute care environment?

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The APTA Geriatrics Journal Club is a free, facilitated webinar-based discussion about a Journal article where you interact directly with the author and a clinician with a relevant case study that demonstrates how that information could be used. It's a fun way to move yourself in the direction of life learning and beef up your evidence- based practice.

The next APTA Geriatrics Journal Club will be held **March 15, 2022** at 8 pm ET.

We will discuss **Trajectories and Predictors of Functional Capacity Decline in Older Adults from a Brazilian Northeastern Hospital.** *J Geriatr Phys Ther*. 2021;44(2):82-87. doi:10.1519/JPT.0000000000000255.

Case Study: **At Risk to Decline – a PT Responsibility?** by Jennifer Howanitz PT, DPT; Michael Pechulis PT, DPT; Lauren Reightler, OTR/L, OTD

Registration is FREE but required: www.geriatricspt.org/events/webinars

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Michael Pechulis PT, DPT, CCI is Rehabilitation Clinical Specialist for Rehabilitation Clinical Quality and Education with Lehigh Valley Health Network (LVHN). His current responsibilities are split between providing physical therapy services in the Intensive Care Unit (ICU) and assisting in rehabilitation-based initiatives in quality/process improvement, research and rehabilitation focused continuing education. Mike has been with LVHN since 2009. He has co-authored 2 manuscripts that were accepted at the Journal of Acute Care Physical Therapy; he has presented numerous times at conferences. His current research interests are early mobility and rehabilitation interventions in the ICU, functional outcome measures and the assessing value of acute care rehabilitation. Mike graduated from Rutgers Camden with a Doctor of Physical Therapy degree in 2009 and from Drexel University with a BS in Materials Engineering in 1997.

Lauren Reightler, OTR/L, MS, OTD is an occupational therapist specializing in critical care rehabilitation. She completed her undergraduate and graduate education at Ithaca College and continued her studies at Baylor University where she earned her clinical doctorate. Lauren serves as an adjunct faculty member at Moravian University, sharing her passion for research by mentoring graduate students. Dr. Reightler practices in a medical-surgical intensive care unit at Lehigh Valley Hospital in Pennsylvania where she co-founded an outpatient post-intensive care syndrome clinic and serves as the lead occupational therapist for the clinic. Her current research focuses on delirium identification/management in the acute care setting, the role of in-hospital delirium on post-acute rehabilitation, and the role of occupational therapy in the intensive care unit.

Jennifer Howanitz PT, DPT, GCS is an assistant professor and Director of Clinical Education in the DeSales University Doctor of Physical Therapy program. She earned her MPT at the University of the Sciences in Philadelphia and tDPT from Arcadia University. She has over 25 years of clinical experience, including practice in acute care, sub-acute rehabilitation, long term care, home care, and inpatient and outpatient oncology rehabilitation. She currently practices in inpatient acute care with expertise including rehabilitation of older adults with neurocognitive disorders and adults with oncologic diagnoses. A Board Certified Geriatric Clinical Specialist, she is a member of the APTA Academies of geriatrics and oncology, and currently is the chair of the Global Health for Ageing Adults SIG. She has authored and co-authored several articles on the role neurocognitive impairment has in the rehabilitative process, presented research at multiple national conventions, and taught continuing education courses for PTs and other healthcare professionals on rehabilitative management of older patients.

Academy of Geriatric Physical Therapy at GSA

by Tim Kauffman PT, PhD, FAPTA, FGSA

The Academy of Geriatric Physical Therapy was well represented at the Gerontological Society of America (GSA) Conference this past November. Greg Hicks, University of Delaware received the Excellence in Rehabilitation of Aging Persons Award, one of the highest awards for the Health Sciences Section. Greg was also named a GSA Fellow. Jessie VanSwearigen, University of Pittsburgh and Hao (Howe) Liu, University of North Texas Health Science Center, Fort Worth were also honored as GSA Fellows. Over 4,000 attendees joined the virtual meeting representing 36 countries and a wide range of ageing disciplines engaged in biological sciences, health sciences, social research policy/practice and behavioral/social sciences.

The call for abstracts for the November 2-6, 2022 GSA Scientific Meeting in Indianapolis, Ind. has been issued. To learn more, email abstracts@geron.org.

The theme of 2022 conference is: Embracing Our Diversity. Embracing Our Discovery.The deadline for abstracts is March 3, 2022. Another opportunity to submit starts on July 8, 2022 for late-breaking posters.

Running On Empty: Addressing Dehydration

by Jamie Morton, SPT, NSCA CPT

Jack, an 81-year-old man with chronic low back pain, does not want to drink water. He periodically sips bottled water during therapy sessions at his wife's insistence; she reports that is the only time she sees him drink water. Jack says he doesn't need to drink water regularly because he doesn't feel thirsty. He expresses hesitance to drink too much when he might not know where or when he'll next find a bathroom. After an episode of dehydration and heat exhaustion on a trip to Morocco, his wife worries that he'll become dangerously dehydrated and overheated again when they travel. Jack responds sarcastically that he'll be sure to drink more water next time they visit a desert.

Jack's experience is not uncommon. The European Society for Clinical Nutrition and Metabolism (ESPEN) recommends that all older adults be considered at risk for low-intake dehydration and screened appropriately.[1] Dehydration is an issue in every treatment setting, from long term care to outpatient clinic, and directly increases rates of morbidity and mortality in elders.[2] Dehydration can lead to longer hospital stays, increased mortality after hospitalization, constipation, falls, medication toxicity, urinary-tract and respiratory infections, delirium, renal failure, seizures, hyperthermia, and delayed wound healing.[3,4] Adequate fluid consumption has been associated with lower fall rates and improved rehabilitation outcomes in orthopedic patients, as well as lower incidence of constipation, laxative use, and bladder cancer in men.[5] Much has been written on managing dehydration in institutional care of geriatric patients, with less research on management and prevention in community-dwelling older people.[1] Let's look at how physical therapy can impact the education of ageing participants/their caregivers to improve fluid balance to improve functional outcomes.

Etiology

Older adults are more susceptible to dehydration for a variety of reasons. Perception of thirst becomes muted with age.[2] Diminished muscle volume and increased prevalence of adipose tissue lead to an overall decrease in total body fluid.[2,6] Declines in kidney function (decreased ability to concentrate urine, decreased renin and aldosterone production, and decreased sensitivity to aldosterone) increase the relative amount of water lost in urine.[5] Side effects of medications, physical and cognitive dependence, diminished functional status, and medical comorbidities further increase the risk of dehydration.[1,5] Diminished cardiovascular response to hypovolemia and faster onset of delirium can lead to increased fall risk; decreased response of the kidneys to volume depletion may make the kidneys vulnerable to dysfunction and damage.[5] Overall, ageing decreases an individual's functional reserves; small changes in water and electrolyte balance have outsized effects, although these are usually well managed in seniors not medically compromised or dependent.[3]

Age-related changes that increase susceptibility to dehydration are exacerbated by comorbidities commonly seen in geriatric outpatient practice. Congestive heart failure and other cardiac conditions further compromise renin and aldosterone function, as does chronic kidney disease. Heart and kidney pathologies can cause fluid retention, which affects management of fluid balance. Diabetes mellitus can complicate hydration further, as elevated glucose levels affect serum osmolality.[6] Pharmacological management may include medications that further compromise hydration status, electrolyte balance, and kidney function. Sarcopenia and frailty decrease metabolic adaptation to stress and disease and lead to dependence on caregivers to meet hydration needs.[1]

Risk factors

Medical comorbidities and physical dependence are major risk factors for dehydration. Diseases that cause increased urination (diabetes, hypercalcemia) or that are managed with certain medications (diuretics, laxatives, ACE inhibitors, psychotropics) increase fluid loss.[3] Polypharmacy adds to the risk of dehydration, as do cognitive impairment and presence of multiple comorbidities.[3] Even in the absence of risk factors, sudden bouts of diarrhea, diuresis, hyperhidrosis, internal or external bleeding, fluid retention, inadequate fluid intake, or fever can cause fluid imbalance and dehydration.[2] Outpatient physical therapists frequently see people with multiple comorbidities and prescription medications who may be unaccustomed to the physical stress of exercise, and/or those dependent on caregivers for their needs. Outpatient PTs should be aware of the signs and symptoms of dehydration, feel competent in its prevention, and be skilled in educating older adults and their caregivers on the risks and management of dehydration. Physical therapists should also routinely evaluate patients' medication lists for potential risk factors for fluid imbalance (polypharmacy, diuretics, SSRIs, etc.), and inquire about use of over-the-counter medications and supplements (specifically laxatives).[1]

Fluid and electrolyte balance

Water loss dehydration from insufficient fluid intake

is the most common type of dehydration in seniors.[1,3] Excessive or inadequate electrolyte levels also affect hydration status. There are 3 categories of dehydration: hypertonic, hypotonic, and isotonic. Hypertonic dehydration results from greater water than sodium loss, often because of fever, leading to overconcentration of sodium in the body (hypernatremia). The opposite occurs in hypotonic dehydration, when sodium loss outpaces water loss resulting in dilution of sodium in the body (hyponatremia). Seniors may experience hyponatremia with overuse of diuretics,[5] but it can also result from excess consumption of hypotonic beverages such as plain water. Additionally, patients taking selective serotonin reuptake inhibitors (SSRIs), a common treatment for depression, were found to have a 4-times greater risk of hyponatremia than similarly aged controls.[3] Isotonic dehydration, when water and sodium are lost in equal amounts, can be caused by vomiting and diarrhea or by fasting. Seniors may also experience imbalances of other electrolytes, particularly potassium, resulting in the hyperkalemia of chronic kidney disease or hypokalemia with non-potassium-sparing diuretics; these cannot be addressed with education on hydration. A clinician who suspects chronic electrolyte imbalance should consult with or refer to the primary care physician.

Signs and symptoms of dehydration and electrolyte imbalance

Many common signs and symptoms of fluid depletion and electrolyte imbalance are unreliable, vague, or absent in older adults.[4,5] Thirst is a less reliable indicator of hydration than in younger patients.[1] Signs and symptoms of dehydration vary based on lifestyle and premorbid conditions of those attending outpatient PT. Some people will present similarly to younger adults, with increased thirst, dry mouth, decrease in sweat and urination rates, dark urine, dry skin, dizziness, and fatigue.[13,14] Other elders may not experience symptoms until dehydration becomes severe, with changes such as confusion, syncope, increased respiratory rate, increased pulse rate, and shock.[1] Hooper and Bunn found that asking patients about fatigue and whether they had been drinking regularly throughout the day demonstrated the greatest utility in evaluating dehydration in seniors.[4]

A perceived change in status may be the best indicator of dehydration in this population. New onset of the previously mentioned symptoms in the absence of other explanation should prompt the patient or caregiver to ask, "How much water have I (or they) had today?" A sudden change in mental status—especially if the patient has begun taking an SSRI in the past 2 weeks—may indicate hyponatremia; this could include alteration in personality, lethargy, and confusion. Additional symptoms of hyponatremia include nausea and vomiting, headache, muscle weakness, spasm or cramping, and seizures. The heterogeneity of senior patients makes it difficult to predict how dehydration or electrolyte imbalance will present; older outpatient participants should be educated on the range of symptoms they may experience and taught to reflect on their recent fluid consumption if they experience any change in status.

Clinical application

The ESPEN recommends that nutrition and hydration care be individually tailored by a multidisciplinary team based on health status, needs, preferences, and goals.[1] Hydration management extends to provision of fluid between meals, encouragement to drink, and support or assistance to drink.[1] Physical therapists can participate in multidisciplinary management of hydration by educating patients and caregivers, improving upper extremity use and mobility, coordinating with other members of the healthcare team, and encouraging drinking during treatment. In an outpatient setting, regularly offering drinks and encouraging use of a water bottle during PT as well as educating participants is the best way to help them maintain hydration. Providing information on the causes of and risk factors for dehydration, the health consequences, signs and symptoms, fluid/electrolyte balance, and practical solutions for staying hydrated may increase buy-in for improved orthopedic outcomes vs "urge" hesitancy.[4] It may also necessitate teaching mindfulness in the form of consistent awareness of body and mind to monitor overall health, including hydration status. Those hesitant to increase consumption because of anxiety around incontinence or reaching a bathroom may benefit from problem-solving the underlying mobility issue with the clinician. Impaired upper extremity use and decreased mobility can also impair fluid intake, and physical therapists are uniquely qualified to help address these limitations.[15]

Education given to caregivers can include strategies for increasing fluid consumption. Drinks should be provided in an accessible manner.[1,15] A jug that is too heavy to lift may prevent an individual from pouring a drink.[15] Concerns about coordination could be solved by providing a straw. Offering drinks in brightly colored vessels may help patients with cognitive or vision impairments increase fluid consumption. A favorite cup or mug can increase adherence.[15] Good motivational interviewing techniques that include the individual and formal/informal caregivers, listening to their problems and concerns, and customizing strategies to address individual needs are important factors in managing hydration status.

Recommendations on consumption vary by country. The ESPEN recommends 1.6 L/day for women and 2.0 L/day for men,[1] while the World Health Organization specifies 2.2 L and 2.9 L/day and the U.S. Institute of Medicine suggests 2.7 L and 3.7 L/day.[15] There is also evidence that patients need not drink water exclusively. The ESPEN notes that tea, coffee, juice, sparkling water, sodas, and even lagers have similar utility to water in maintaining hy-

dration.[1,15] They recommend that older adults be offered a range of beverages based on preference to help them maintain their hydration status throughout the day.[1] Fluid needs vary based on body size, activity level, and environment, and conditions such as congestive heart failure and renal failure may necessitate fluid restrictions. Fluid management in complex cases such as these should be executed as part of a multidisciplinary team. Therapists can also play a role in screening for dysphagia and other impairments limiting fluid consumption, with referral to the appropriate member of the multidisciplinary team (e.g., speech-language pathologist, dietician).

Patients can be given government guidelines (2.7 L/day for females and 3.7 L/day for males in the U.S.) as a starting point but should be encouraged to monitor how they feel and increase their intake gradually until they find an amount that works for them. They should also be advised to increase their water intake if they are exercising vigorously or spending time in a hot or dryer environment. Individuals with comorbid chronic kidney disease, congestive heart failure, and/or diabetes mellitus can be directed to their primary care physician for more specific guidance on managing hydration. Clinicians can advise patients and caregivers that most fluids (coffee, tea, juice, etc.) will hydrate as well as water, although beverages chosen must still suit medical and nutritional needs. For example, fruit juice or soda may not be acceptable beverages for an older adult with type II diabetes mellitus. All older adults and their caregivers should be reminded of the effects of caffeine, alcohol, and excessive sugar, and to moderate their intake. Caffeine and alcohol also increase throughput of fluid, which may be a concern for patients who are already worried about reaching the bathroom in time.

Because there are 3 types of dehydration (hypertonic, hypotonic, and isotonic), some seniors may need to consume small quantities of electrolytes, mainly sodium, to maintain proper fluid balance. Most patients will not need education on electrolyte consumption,[1] but physical therapists should be competent in addressing this facet of nutrition with patients and caregivers. Some people, assuming that more is better, might overconsume water with possible hyponatremia or water intoxication resulting. Older athletes returning to sport or couch potatoes now increasing the intensity of their exercise programs, as well as those on medications that could affect electrolyte balance (non-potassium-sparing diuretics, laxatives, SSRIs) will benefit from education on electrolyte balance, in addition to maintaining proper hydration.

Many individuals present to physical therapy with complex medical needs; therapists should integrate education and guidance with the multidisciplinary healthcare team. Patients with congestive heart failure may have fluid restrictions that need to be balanced against hydration demands. Fluid restriction is a common non-pharmacologic intervention used in cases of acute and chronic heart failure but must be balanced against the serious risks associated with dehydration in this population.[16] Hypoglycemia increases serum osmolality[15] for those with diabetes leading to great water loss through urination as the kidneys attempt to excrete glucose. Common drugs used to manage blood glucose (including metformin) can further increase risk of dehydration.[17] Diabetic patients may need to consume more fluids to balance this loss and should be encouraged to avoid liquids with added sugar. Chronic kidney disease impairs the body's ability to regulate fluid and electrolytes by a variety of mechanisms that are beyond the scope of this article. These conditions, commonly seen in outpatient geriatric practice, affect multiple body systems, and recommendations on fluid regulation should be made carefully and in consultation with the entire healthcare team.

Water is a key ingredient in human health and wellness and contributes to the overall function of the human movement system. It is a vital component of muscle and connective tissue, provides nutrient transport, encourages healing, and cushions joints and organs. Fluid helps maintain the rhythm and stability of the cardiorespiratory system and regulates body temperature. Physical therapists, experts on the movement system, should feel confident educating patients on the importance of proper hydration and making recommendations to help patients optimize this aspect of their health.

Jack now drinks without prompting, taking breaks between exercises to sip his bottled water. He asked if he must drink water exclusively to stay hydrated and was glad to learn that most other fluids will do. His wife, though skeptical, accepted this information when provided with supporting research. They no longer argue about drinking water during sessions; now they joke about bringing a Manhattan.

Physical therapists can help prevent disability, improve function, and better achieve mobility goals by educating older adults and caregivers on the importance of keeping their water tanks full.

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Beyond Prior Level of Function: The Lens We Use

by Carole Lewis PT, DPT, PhD, FAPTA and Linda McAllister PT, DPT

Prior level of function (PLOF) is an essential component that therapists assess during patient examination, and rightly so. PLOF documents useful information that guides goal setting and intervention plan. However, the lens with which the therapist views PLOF can have a big impact on both plan and approach.

Let's look at some examples:

Example #1

Elsa, an 82-year-old participant reporting low energy and function 7 months post aortic valve replacement surgery. Prior to surgery, she was driving, doing her shopping with the help of a friend, attending activities, and occasionally using a straight cane when she went out. Her recovery after the heart valve surgery was complicated by a minor bowel resection for diverticulitis; following this she has had intermittent diarrhea. Elsa was referred to outpatient cardiac rehab and outpatient physical therapy, neither of which she attended, partly due to her gastrointestinal discomforts. During a home physical therapy examination, she demonstrates an unsteady gait, is "furniture walking", has low endurance (2-minute step test = 32 steps). She reports that she only leaves home for medical appointments when her friend can go with her and drives. She scores at risk of falling per multiple standardized measures, including her self – selected gait speed of 0.6meters/second. Elsa reports persistently feeling weak, unsteady and confined to her home since the heart surgery.

So, what is this participant's baseline? Should it be documented as the community- level mobility that she had prior to surgery? It has already been > 6 months since she's functioned at this level. Or should we consider her baseline function as the level that she has settled into for these last months – the unsteady, household-level gait? If the latter, once safe mobility with compensations (assistive devices, appropriate adaptive changes in her home, etc.) has been established, we might consider her goals achieved.

On the other hand, if Elsa's PLOF is recorded as community-level ambulation, focus of the plan of care will be on mitigating her reduced capacity of strength, static and dynamic balance, and endurance. This will likely require a longer intervention period and a continuous progression of her home program and activities outside therapy, to achieve a sufficient overload, and dosing for a change in her function.

Example #2

Bette, an 86-year old participant who is recovering from a fall with hip fracture she sustained 10 weeks ago. She is back in her private home and has achieved independence with bed mobility, transfers, and basic activities of daily living using a wheeled walker and other adaptive devices. Bette is walking up to 200 feet with a self-selected gait speed of 0.67 meters/second using her walker. She reports that prior to her fall, she walked without an assistive device but was feeling gradually weaker and more imbalanced over the last several months. She had recently given up driving and was going out much less.

What is her baseline? Do we consider it to be her level prior to her gradual, months-long decline: independent in the community? Is PLOF the level just prior to her fracture, not truly community- ambulatory? Or has she reached her "new normal," having achieved the ability to safely navigate her home? The lens used to define and document PLOF will have a significant influence on her course of care.

More often than not, defining PLOF in older adults is nuanced and not all that straightforward. The participant's goals, of course, are paramount in forming the plan of care; other factors certainly contribute. However, the viewpoint of the therapist will ultimately drive the program, goals, and what is considered to be skilled care.

Older adults initiating physical therapy care may have a prior level of function that makes them extremely vulnerable to adverse events.[1] Goals to achieve a recent baseline may leave them in a continued state of vulnerability. That baseline (which may include frailty and low functional reserve) may have significantly contributed to the hospitalization or adverse event that brought them into treatment. [2]

Therapists are under increasing pressure to curtail visits and intervention time (more on that in our next issue's article). However, we are perfectly poised to identify and address factors that indicate frailty, such as muscle weakness, slow gait speed, and low physical activity. When it's appropriate, this might mean aiming higher than a recent PLOF and staying in with participants longer with higher intensity interventions to achieve that goal. Next time you are doing an examination with an older adult, take a moment to reflect upon what lens you are using to view their PLOF. It may make all the difference and leverage your valuable skills.

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"The function of education is to teach one to think intensively and to think critically. "

— Martin Luther King Jr