

GERI NOTES

Academy of Geriatric Physical Therapy

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Academy Website

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Online Geriatric Discussion Group

<https://www.facebook.com/groups/geriatricspt>

This is a private and moderated group, request to join and answer basic questions including professional designation. You will then be approved within 24 hours and can join in all discussions.

President's Message

Greg Hartley, PT, DPT



Membership Matters. As APTA Geriatrics gears up for an exciting new year, I am reminded that our plans for 2020 cannot be accomplished without member (*your*) engagement. The new year will undoubtedly bring new opportunities and challenges. APTA Geriatrics has a strategic plan that is bold, fresh, and ambitious. The plan, which is available to all members at <http://geriatricspt.org/pdfs/AGPT-Strategic-Plan.pdf> (requires login), outlines the Academy's plans that go beyond our normal operations and regular functions. This year, we will continue to develop and operationalize many tasks that resulted from the overarching plan. A few examples include:

- A marketing and PR initiative centered around rebranding that pairs positivity and aging and reframes the image of aging as it relates to the role of the PT and PTA.
- Educational programs designed to elevate patient management and enhance the value of physical therapy

services to aging adults including a new certification for balance and falls management.

- Leveraging partnerships with other Sections/Academies starting with sports and pelvic health, and potentially expanding to neurology, orthopaedics, education, and more.
- Leveraging partnerships with external organizations like the National Senior Games Association, the National Council on Aging, the Centers for Disease Control and Prevention, and more.
- Continuing and expanding our commitment to evidence-based practice by contributing to the body of knowledge via our *Journal of Geriatric Physical Therapy*, creating user-friendly knowledge translation tools, and enhancing consumer resources.
- Modernizing our communications including the website, *GeriNotes*, effective use of social media (Twitter, YouTube, Facebook, Instagram), podcasts, webinars, mobile technology, and Apps.

These are just some highlights and does not include all that the Academy is working on.

Now, think about that last sentence for a second. The list "...does not include all that the Academy is working on." What, or who, do you think of when you think of *the Academy*? I hope you think of a community, a group of professionals, who want to make a positive impact on PTs and PTAs and the patients they work with. But I also really hope you think of yourself. *You are the Academy; you are APTA Geriatrics.* Without members like you, none of this work could get done. And with such a packed plan...*we need your help.* One of the biggest ways you can help is to spread the news about APTA Geriatrics (the Academy) and get someone to join! We have partnered with APTA on the One-by-One campaign. Members who recruit new members are eligible for some cool prizes. When new members join the Academy (APTA Geriatrics), you will get double entry for the prize drawings, so make sure they join the Academy. See details about the contest at <http://www.apta.org/ONEbyONE/>. Help us grow so we can engage more people in our work. I challenge members to get one person to join the Academy by 9/30/2020. Your move.



Editor's Note

Michele Stanley, PT, DPT



THIS IS THE LAST *GERI-NOTES* ISSUE (that will look like this). In 2020 we enter the age of digital publishing with high hopes that

in so doing we can increase our pages/less cost, increase the visual interest [Send fun and beautiful photos], and continue and increase our mission as an intersection between serious research and clinical applications [send case reports!]. We have a new publication schedule and new deadlines (see inside front cover) as well as a new publisher. Change is exciting! Change is also sad as the *GeriNotes* staff says good-bye and a very fervent thank you to Sharon Klinski and the Academy of Orthopaedic Physical Therapy, APTA (publishers since the birth of *GeriNotes*);

Sharon has graciously and very helpfully shepherded numerous *GeriNotes* editors across the often confusing and tedious conventions that regulate in print magazines. Truly, none of us could have done it without her! New guidelines for authors are published in a folder in the *GeriNotes* section of our web page. HINT: you still have to put all references in AMA format and use Oxford commas!!

We are going out of the print edition with a Big Bang! Check out the third of four clinical application of yoga articles (pelvic health) and use the QR code to see techniques beautifully demonstrated. Kristi Hallisy explains Tai Chi. New author Anne Davenport provides a primer on the benefits of and ways to excellence as a PRN therapist. Another residency fellow writes about a community integration model used in the VA system with potential applications for all of us; part of the *GeriNotes*

mission is to spotlight a resident or recent resident in each issue. Ellen Strunk, as always provides an insightful and timely Policy Talk. Carole Lewis and Linda McAllister knock merging clinical application and research “out of the park” with their current column on sitting and trunk control. Guest author Leslie Allison, JAGPT Editor-in-Chief, continues her series on understanding statistics.

Lots of good things are happening across the Academy. Yahoo! Groups is making admin changes that are unfriendly to listservs so we are transitioning to a FaceBook private (but you are invited) discussion group. Please consider joining us: <https://www.facebook.com/groups/geriatricspt/>

If this gives you trouble – friend me! I’m the Michele Stanley whose profile picture is pink tulips! Let’s have some fun with change!

APTA Geriatrics Discussion Group on Facebook

We are excited to announce the formation of the **APTA Geriatrics Discussion Group** on Facebook — a new forum that encourages members to engage in intellectual exchange on clinical, regulatory, and other professional topics related to geriatric physical therapy.

If you’d like to participate in discussions on topics related to geriatric physical therapy, we encourage you to join the new **APTA Geriatrics Discussion Group**. This group will be open to both non-members and members of APTA Geriatrics.

To join,

1. Go to <https://www.facebook.com/groups/geriatricspt/>.
2. Click the “Join Group” button in the group’s main menu to send a request to join the group.
3. Check your notifications. Once a moderator of the group approves your membership, Facebook will send you a notification of the approval and group posts will immediately begin to appear in your news feed.
4. Incoming posts will be moderated by a team of PTs.



NEW! APTA Geriatrics Discussion Group

A forum for intellectual exchange on clinical, regulatory, and other professional topics related to geriatric physical therapy

Join us at

www.facebook.com/groups/geriatricspt/



Policy Talk: Changes in Post-Acute Care

Ellen R. Strunk, PT, MS

Over the last 12 months, clinicians and therapists working in the post-acute care environment have experienced significant change. Skilled nursing facilities (SNFs), home health agencies (HHAs), and inpatient rehabilitation facilities (IRFs) all received news in their final rules for 2020 that, while not unexpected, is likely overwhelming to many. More recently there has been social media outcry, anger and anxiety about how some providers have responded to this change. The Academy of Geriatric Physical Therapy and its publications cannot comment on business decisions corporate entities make in response to environmental and regulatory changes because we lack the facts upon which those decisions were made. We can comment, however, on the important role physical therapy plays in the care and functional outcomes of the patients they are responsible for. We can support physical therapists and physical therapist assistants in providing clinical treatment that is supported in science and contributes to the health of older adults and by extension, the population of our communities.

SKILLED NURSING FACILITY'S PATIENT DRIVEN PAYMENT MODEL

On July 31, 2018, the Centers for Medicare and Medicaid Services (CMS) published the *Prospective Payment System (PPS)* and *Consolidated Billing for Skilled Nursing Facilities (SNF) Final Rule for Fiscal Year (FY) 2019*. The rule finalized CMS's proposal to replace the current SNF PPS Resource Utilization Group (RUGs) with a new payment model called the Patient-Driven Payment Model (PDPM) beginning on October 1, 2019. In the SNF PPS *Final Rule for FY 2020*, published on August 7, 2019, CMS made very few minor changes to the PDPM model.

The change in payment model is welcomed by many therapists and other

professionals who were critical of the Resource Utilization Group (RUG) PPS model because it tied payment to the volume of therapy minutes delivered. For years, therapists were put in a position where they felt the volume of therapy services was more important than the value of therapy services delivered.

We can support physical therapists and physical therapist assistants in providing clinical treatment that is supported in science and contributes to the health of older adults and by extension, the population of our communities.

The PDPM is a fundamental shift from the RUG's system since it determines payment using only data that describe the patient's characteristics and/or the medical treatments that are required by their active diagnoses. In fact, the number of therapy days and minutes delivered have no influence over what an SNF is paid. Under the new system, patients will be assigned a Case Mix Group (CMG) using 5 components: physical therapy (PT), occupational therapy (OT), speech language pathology (SLP), nursing, and non-therapy ancillaries (Table 1). The PT and OT case mix groups are driven by the same data points: primary reason for the SNF stay and the patient's baseline functional status in specific self-care and mobility areas. However, the case mix weights for PT and OT are different for each of the 16 case mix categories. The SLP case mix group is driven by different data points because when CMS analyzed past claims and assessment data, they found more

variability in the types of patients who received SLP services. The case mix group is determined by the presence/absence of an acute neurological diagnosis, the presence/absence of a swallowing disorder and/or the patient requiring a mechanically altered diet, the presence/absence of a cognitive disorder and the presence/absence of comorbidities that impact communication, swallowing, or other language functions. The nursing case mix groups were the least changed in updating the PPS. The most significant changes for nursing case mix groups are that first, the functional component is now determined using scoring from Section GG rather than the prior method of Section G. This is a significant difference because of how the items are scored. The second most significant change is that because every patient will be assigned to a nursing case mix group, the need for skilled nursing documentation on every patient becomes more important. Under the RUGs payment model, when a patient was classified in a Rehabilitation RUG, there was less emphasis on the nursing documentation since the payment was directly tied to the rehabilitation services received. The last piece is the Non-Therapy Ancillary component, and this is driven by multiple sections of the Minimum Data Set and accounts for special services, special conditions, and/or active diagnoses that are correlated to higher costs of care. Each of the components is outlined in Table 1 for reference.

The PDPM model also brought with it a philosophical change in how CMS is approaching payment for skilled nursing facility services. Under the RUG's model, an SNF had to provide specific amounts of therapy service in order to receive specific amounts of payment. The intensity of that therapy service was directly tied to the level of payment. Under PDPM, that philosophy of "do this much and you

Table 1. Components Used in the Patient Driven Payment Model

Component	Patient Characteristics	Important Minimum Data Set Sections	Per Diem Payment
Physical Therapy	Primary reason for Skilled Nursing Facility Stay falls into 1 of 4 categories: 1) Major Joint Replacement or Spinal Surgery 2) Non-Orthopedic Surgery or Acute Neuro 3) Other Orthopedic 4) Medical Management	I0020B	Beginning with Day 21, per diem payment amount decreases by 2% every 7 days
	Functional Status Self-Care: 3 items	GG0130A, B, C;	
	Functional Status Mobility: 8 items	GG0170B, C, D, E, F, I, J, K	
Occupational Therapy	Primary reason for Skilled Nursing Facility Stay falls into 1 of 4 categories: 1) Major Joint Replacement or Spinal Surgery 2) Non-Orthopedic Surgery or Acute Neuro 3) Other Orthopedic 4) Medical Management	I0020B	Beginning with Day 21, per diem payment amount decreases by 3% every 7 days
	Functional Status Self-Care: 3 items	GG0130A, B, C;	
	Functional Status Mobility: 8 items	GG0170B, C, D, E, F, I, J, K	
Speech Language Pathology	Primary reason for Skilled Nursing Facility Stay falls into 1 of 2 categories: 1) Acute Neuro 2) Non-Neuro	I0020B	Per diem payment is the same for all covered days
	Cognitive Status	Section C	
	Presence of swallowing disorder	Section K	
	Presence of mechanically altered diet	Section K	
	Presence of other speech language pathology co-morbidities	Sections I, O	
Nursing	Active medical conditions and orders for treatment	Sections C, E, H, I, J, K, M, N, O	Per diem payment is the same for all covered days
	Functional status in late-loss activities of daily living abilities	GG0130A, C; GG0170B, C, D, E, F	
	Presence of symptoms of depression	Section D	
	Number of restorative nursing services received	Section O	
Non-Therapy Ancillary	Number and type of active diagnoses present	Section I (but not I0020B) SNF Claim	Per diem payment tripled days 1-3; then at baseline for remaining covered days
	Other services and treatments ordered	Sections H, I, K, M, O	

get this payment” is gone forever. In other words, CMS is expecting SNF providers to determine “how much service” is needed in order to provide the “right outcome” for the patient. “How much payment” the SNF receives is not dependent on the amount of service or what service is provided. Essentially,

SNFs are shifting into the value-based world of payment under PDPM.

Is it scary for therapists? Absolutely. On the positive side, it does give rehabilitation services in the SNF a clean slate to demonstrate the value we provide to the population we serve. Our days are no longer filled

with volume thresholds that must be met. Instead, we can focus on person-centered care. We can begin to better understand how patient characteristics influence our decisions about exercise prescription. The final rule for FY 2020 also relaxed the definition of group therapy to include “2 to 6 patients at the

same time who are performing either the same or similar activities” (see the first Other Reference on page 10). This gives therapists the opportunity to use their clinical judgment about not only when to use group therapy but also what is the appropriate number of patients to have in a particular group. So, what will you do with these new opportunities?

HOME HEALTH AGENCY'S PATIENT DRIVEN GROUPEE MODEL

On October 31, 2018, the Centers for Medicare and Medicaid Services (CMS) published the *CY 2019 Home Health Prospective Payment System Rate Update and CY 2020 Case-Mix Adjustment Methodology Refinements*. The rule finalized CMS's proposal to replace the current Home Health Resource Groups (HHRGs) with a new payment model called the Patient-Driven Group Model (PDGM) beginning on January 1, 2020. In the *Home Health PPS Final Rule for FY 2020*, published on October 31, 2019, CMS slightly modified and finalized a few of the more controversial parts of the PDGM model, while also maintaining its timeline for implementation. The most welcome changes were: (1) an update of 1.5% to the payment amount and (2) a reduction in the 'behavioral adjustment' that was originally written into the methodology for the PDGM. First, the 30-day payment rate for HHAs that report the required quality data will be \$1,864.03. Second, due to the advocacy of hundreds of commenters (including PTs and PTAs) who wrote to CMS during the rule-making period indicating that the behavioral assumptions were too punitive since they were based on 'assumptions' of behavior that had not actually occurred yet and may never occur. While CMS disagreed and pointed to multiple examples and analyses where they had provided evidence of coding changes that followed revisions to the home health (HH) case-mix system, they did decrease the behavioral adjustment from a proposed -8% to a finalized -4.36%.

Home health agencies may also experience a disruption in their cash-flow as it relates to business operations concurrent with implementing PDGM on January 1, 2020. There are two significant changes for HHAs: (1) a

new claim period of 30 days and (2) a reduction in the 'up-front' payment amount associated with the Request for Anticipated Payment (RAP). Under the new payment model, the unit of payment for HH services will move from a 60-day period to a 30-day period, while the certification period for HHAs will remain at 60 days. Moreover, HHAs are used to receiving 60% of their anticipated payment upon submission of a RAP, and the remaining 40% when the final claim for the 60-day period is submitted. This changes to 50%/50% for second and subsequent claim periods. Effective for episodes beginning on/after January 1, 2020, however, the 'up front' payment will change to 20% of the estimated final payment amount for both the initial and subsequent 30-day periods of care. Additional changes were made that become effective in later years. Beginning January 1, 2021, CMS will implement a reduction to the 'up-front' payment amount to 0% if the RAP is received late, defined as >5 calendar days after the start of care or within 5 calendar days of day 31 for the second, subsequent 30-day periods in a 60-day certification period. Beginning January 1, 2022, CMS will eliminate the entire split-percentage payment approach, so HHAs would be paid at the end of every claim period, rather than receiving an 'up-front' payment. The CMS will replace the RAP with a one-time submission of a Notice of Admission that will also carry a late submission penalty if it is not submitted within 5 calendar days of the start of care.

Like their colleagues in the SNE, HH therapists have experienced the criticisms related to therapy visits and the HHRG level. The HHRG payment is currently influenced by the number of therapy visits delivered over the course of a 60-day episode: as the number of therapy visits increases, so does the payment to the HHA. The Medicare Payment Advisory Commission has repeatedly called on CMS to eliminate the number of therapy visits as a payment factor since they believe it "creates financial incentives that distract agencies from focusing on patient characteristics."

Similar to the PDPM, the new Home Health model is designed to classify the patient using only clinical characteristics and other patient

information components (Table 2). In the PDGM, there are 5 main case-mix variables: the Admission Source and Timing, the Principal Diagnosis, the Functional Impairment Level, and the Comorbidity Adjustment. Only the Functional Impairment Level will come from the OASIS start of care assessment (or follow-up assessment if indicated), while the remainder of the variables will come from the claim form.

Admission source was found to be predictive of resource needs in prior HH claims analysis. Therefore, under the PDGM, a patient who is initially admitted to an HHA within 14 days of a hospital or post-acute care institutional stay will be considered an Institutional Admission, which raises the case mix index for the payment. However, that would only apply for the first 30-day claim period. A patient would be classified as a Community Admission for subsequent 30-day claim periods unless they were readmitted to the hospital and discharged back to HH within 14 days prior to the subsequent, contiguous 30-day period, and as long as the patient was not discharged from the HHA and then readmitted. A patient admitted to the HHA from a community referral source, such as a physician's office, would be considered a Community Admission.

Under the PDGM, each 30-day period will be classified as "early" or "late" depending on when they occur within the sequence. Only the first period of care will be classified as "early" and therefore receive a higher case mix index, while all subsequent episodes will be classified as "late." A patient will not be eligible for another "early" 30-day period until they have had a gap of more than 60 days between the end of one 30-day period of HH services and the start of a new 30-day period of HH services. In other words, the patient must have been discharged from service for at least 60 calendar days.

The third component for classifying the patient into a case mix group is the primary reason for which the patient is being admitted to the HHA. Each patient will be placed into one of 12 clinical groupings. However, CMS reinforced in its final rule that while the clinical groups represent the primary reason for HH services during the period of care, it does not mean it is the only service the patient requires. For example, a patient may be admitted to

Table 2. Components Used in the Patient Driven Grouper Model

Timing*	Admission Source^	Clinical Grouping#	The Primary Reason for the Home Health episode is:	Functional Level~	Co-morbidities**	LUPA^^
Early or Late	Community or Institutional May be indicated by: Occurrence code 61 (acute care hospital discharge within 14 days of the "From Date" of any HH claim) OR Occurrence code 62 (SNF, IRF, LTCH, IPF discharge within 14 days of the "From Date" of any HH claim)	Musculoskeletal Rehabilitation	PT, OT, or ST for musculoskeletal condition	Lo, Med, Hi	None Low High	>/=2 </=6
		Neuro/Stroke Rehabilitation	PT, OT, or ST for neurological condition	Lo, Med, Hi		>/=2 </=6
		Assessment, Treatment & Evaluation of:				
		Wounds – PO Wound Aftercare and Skin/ Non-surgical Wound Care	Surgical wound(s), non-surgical wounds, ulcers, burns, other lesions	Lo, Med, Hi		>/=2 </=5
		Behavioral Health Care	Psychiatric conditions	Lo, Med, Hi		>/=2 </=5
		Complex Nursing Interventions	Complex medical & surgical conditions including IV, TPN, enteral nutrition, ventilator, and ostomies	Lo, Med, Hi		>/=2 </=4
		Medication Management, Teaching and Assessment (MMTA): Assessment, Evaluation, Teaching and Medication Management for:				
		MMTA – Surgical Aftercare	Surgical aftercare	Lo, Med, Hi		>/=2 </=5
		MMTA – Cardiac/ Circulatory	Cardiac or other circulatory related conditions	Lo, Med, Hi		>/=2 </=5
		MMTA – Endocrine	Endocrine related conditions	Lo, Med, Hi		>/=2 </=5
		MMTA – GI/GU	GI or GU related conditions	Lo, Med, Hi		>/=2 </=4
		MMTA – Infectious Disease/ Neoplasms/ Blood-forming Diseases	Conditions related to infectious diseases, neoplasms, and blood-forming diseases	Lo, Med, Hi		>/=2 </=4
		MMTA – Respiratory	Respiratory related conditions	Lo, Med, Hi		>/=2 </=5
		MMTA - Other	A variety of medical and surgical conditions not classified in one of the previously listed groups	Lo, Med, Hi		>/=2 </=5

*Timing: Early (1st episode) or Late (2nd or later episode)

^Admission Source: Community or Institutional (Institutional is defined as an acute care, inpatient psychiatric facility, long term care hospital, skilled nursing facility, or inpatient rehabilitation facility stay that occurred in the 14 days prior to the HH SOC); For the 2nd and subsequent episodes, if an acute care stay (only) occurred in the 14 days prior to the subsequent episode of care.

#Clinical Groups: 12 groups to describe the primary reason for which patients receive HHC

~Functional Level: Low, Medium, High using OASIS items (Grooming; Current ability to dress upper body; Current ability to dress lower body; Bathing; Toilet transferring; Transferring; Ambulation and locomotion; Risk for rehospitalization). Each category has its own cut-off points for low, medium, or high functional level.

**Co-morbidities: Presence of one or more 13 co-morbidity subgroup interactions would receive the low adjustment; Presence of one or more 34 comorbidity subgroup interactions would receive the high adjustment; Absence of secondary diagnoses in either comorbidity would receive no adjustment.

^^LUPA thresholds vary depending on the final PDGM group assigned.

home care for assessment and treatment of an infection and requires IV administration. Just because the name of the clinical grouping in “Complex Nursing Interventions” does not mean they may not also require skilled physical therapy services to address balance impairments and a reduction in their functional independence. All HHAs are required to abide by the Home Health Conditions of Participation (CoPs). COP §484.60(a)(2) states an HHA has a responsibility to ensure the individualized HH plan of care includes all the disciplines necessary to address a patient’s care needs.

The Co-morbidity Adjustment is based on the presence of secondary diagnoses reported on HH claims. The diagnoses are based on specific lists of subgroups that have similar resource use. Each HH 30-day claim period can receive a ‘Low’ comorbidity adjustment, a ‘High’ co-morbidity adjustment, or a ‘No’ co-morbidity adjustment, but cannot receive more than one adjustment per 30-day claim period.

The Functional Impairment Level is determined from responses to selected questions on the OASIS Start of Care assessment. The questions report on a patient’s self-care and mobility abilities, as well as the patient’s risk for hospitalization. Item responses carry points and the sum of these points results in a functional impairment level group (Low, Medium, High) that is intended to account for differences in resource use. A person with a High level of impairment would be expected to have a higher resource need than those with a Low level of impairment.

Another significant change for HH

providers in FY2020 will be the ability to use therapist assistants to perform maintenance therapy. In the past, only therapists/clinicians were allowed to provide maintenance therapy HH visits. In its final rule, CMS referenced previous comments submitted by therapists expressing concerns about shortages of therapists, especially in rural areas. Therefore, for episodes starting on/after January 1, 2020, therapist assistants will be able to perform maintenance therapy services under a maintenance program established by a qualified therapist under the HH benefit, if they are acting within the therapy scope of practice defined by their state licensure laws. However, the PT would still be responsible for the initial assessment, the plan of care, the maintenance program development, and any modifications, as well as a reassessment every 30 days, in addition to supervising the services provided by the therapist assistant.

INPATIENT REHABILITATION’S FUNCTIONAL INDEPENDENCE MEASURE

The final rule for FY2019 IRFs announced that beginning on or after October 1, 2019, the Functional Independence Measure (FIM™) instrument and the associated Function Modifiers will be removed from the IRF Patient Assessment Instrument. Over the last 5 years, CMS has been working to standardized patient assessment items mandated by the Improving Medicare Post-Acute Care Transformation (IMPACT) Act.¹ One of the domains called for by the IMPACT Act was function. In October 2016, IRFs began collecting Section GG self-care and

mobility items, and data from 2017 and 2018 were used to compute the Case Mix Groups (CMGs) and the average length of stay values beginning with FY 2020, eg, October 1, 2019.

Since the inception of the IRF PPS, the case-mix classification system used a weighted motor score based on FIM™ data items to assign patients to a Case Mix Group (CMG). However, in its effort to standardize a functional language across post-acute care settings, CMS finalized a decision to replace the FIM™ with the Section GG self-care and mobility items that were developed during the Post-Acute Care Payment Reform Demonstration. In this year’s final rule, they decided to maintain their original position that the motor score should be calculated by summing the scores of 18 data items. Rolling left and right was removed due to the analyses that it did not improve the accuracy of the payment model since it was found to have a high degree of similarity to other items in the motor score. The 18 data items are found in Table 3. However, based on public comments, CMS did back off on its proposal to use a weighted motor score to assign patients to CMGs. Instead they are using an unweighted motor score. The CMS believes a simpler methodology for calculating the motor score will “ease providers’ transition to the use of the data items...referred to as section GG items).”²

THERAPY SERVICES IN POST-ACUTE CARE ARE NOT GOING ANYWHERE

We are in a time of significant change for the post-acute care sector. As

Table 3. Inpatient Rehabilitation Facilities Motor Score Items

Item Number	Item Description	Weight	Item Number	Item Description	Weight
GG0130A1	Eating	1	GG0170B1	Sit to lying	1
GG0130B1	Oral hygiene	1	GG0170C1	Lying to sitting on side of bed	1
GG0130C1	Toileting hygiene	1	GG0170D1	Sit to stand	1
GG0130E1	Shower/bathe self	1	GG0170E1	Chair/bed to chair	1
GG0130F1	Upper body dressing	1	GG0170F1	Toilet transfer	1
GG0130G1	Lower body dressing	1	GG0170I1	Walk 10 feet	1
GG0130H1	Putting on/taking off footwear	1	GG0170J1	Walk 50 feet with two turns	1
			GG0170K1	Walk 150 feet	1
H0350	Bladder continence	1	GG0170M1	One step curb	1
H0400	Bowel continence	1			

therapists, we cannot expect to thrive if we refuse to reflect on our current practice and look for opportunities to improve the value of the service we provide. The fact is that regardless of payment models changing, patients will still require some level of post-acute care, and those who do, benefit from the provision of therapy services. Might it look different than it used to? Yes, and that is not necessarily a bad thing. The practice of physical therapy is constantly evolving as we find new treatment methods and approaches to address our patient's needs.

During times of change, it is not uncommon to become concerned, but with additional data collection, it might also help our profession better understand what effective care is and for whom. We all have a duty to assure that our patients receive the treatment they need and require. The CMS has stated they plan to monitor any changes in therapy use patterns as well as provider behavior. They have a responsibility to maintain beneficiary access to services. In both the SNF final rule and the HH final rule, CMS specifically pointed out that therapy remains a valuable service for Medicare beneficiaries. If it appears that providers are adopting behaviors that put Medicare beneficiaries at risk of lower outcomes, or worse yet, harm, CMS said they would take swift action with program integrity measures, in addition to making refinements to the payment models.

Therapists should continue to use effective patient care treatments that will directly impact outcomes. Every SNF, IRF, and HHA is required to participate in their respective Quality Reporting Program and Value-Based Purchasing program (Table 4). The measures can be used by therapists to advocate for appropriate levels of service. Over the last 15 months, the Academy of Geriatric Physical Therapy, the Home Health Section, HPA The Catalyst Section, and the APTA have been partnering to bring members information and resources about PDPM, PDGM, and the looming Uniform Post-Acute Care payment model that is sure to follow.

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Table 4. PAC Quality Reporting Programs

SETTING	QUALITY REPORTING PROGRAM	"COMPARE" WEBSITES
Skilled Nursing Facility	https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Skilled-Nursing-Facility-Quality-Reporting-Program/SNF-Quality-Reporting-Program-Measures-and-Technical-Information.html	https://www.medicare.gov/nursinghomecompare/Data/About.html#qualityOfResidentCareDataCollection
Home Health Agency	https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/Home-Health-Quality-Measures.html	https://www.medicare.gov/HomeHealthCompare/Data/Patient-Care-Star-Ratings.html
Inpatient Rehab Facilities	https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/IRF-Quality-Reporting-Program-Measures-Information-.html	https://www.medicare.gov/inpatientrehabilitationfacilitycompare/#about/theData

Yoga and Geriatric Pelvic Health

Ginger Garner PT, DPT; Laverne Garner PT, DPT

INTRODUCTION

The area of pelvic health in physical therapy practice has experienced explosive growth in the last 20 years. The concept of pelvic health is frequently considered in younger, childbearing age women. However, pelvic health impairment is just as prevalent, and as important to address, in older adults of both genders. Issues such as pelvic floor weakness can lead to various forms of incontinence, prolapse, and pelvic girdle pain while increased pelvic floor tone issues can cause sexual dysfunction and chronic pelvic pain. In a Dutch study, 75% of women aged 45 to 85 had some degree of pelvic organ prolapse.¹ The worldwide prevalence for chronic pelvic pain in men and women is estimated to be between 2% and 26.6%,² with chronic prostatitis and pelvic pain syndrome thought to affect approximately 8.2% of men.³ In a 2018 study of 177 post-menopausal women living with pelvic pain, 32.8% also suffered from depressive symptoms,⁴ leading to the common finding in studies that chronic pelvic pain and pelvic dysfunction must be addressed by a multidisciplinary team with a multi-modal, biopsychosocial approach.^{1-3,5-13}

Chronic pelvic pain (CPP) is defined as “persistent noncyclical pain perceived to be in the structures related to the pelvis and lasting greater than 6 months.”⁷ Functional somatic pain syndromes are believed to be a common co-morbidity to CPP and include impairments such as irritable bowel syndrome and nonspecific chronic fatigue syndrome.⁷ In those with sexual dysfunction, worldwide midlife prevalence is estimated to be 22% to 43%, and of those with it, only 21% report it to their health care provider.⁸ Longitudinal studies reveal a relationship between “advancing menopause status and worsening function,” in correlation with sexual dysfunction include psychosocial status (specifically partner availability, relationship quality, and psychological functioning), physical health/fitness level, perceived stress, depression, anxiety, and low socioeconomic status. Another ad-

ditional confounding variable in treating pelvic pain in women is the frequency of trauma history.¹⁴ While developing clinical expertise in the area of pelvic health may not be the goal of all clinicians reading this article, due to the prevalence of pelvic floor dysfunction, it does seem prudent for clinicians treating older adults to have at least a rudimentary understanding of how it might be impacting the overall well-being of a great many older adults.

STANDARDS OF CARE

The current standard of care for older adults living with pelvic pain and dysfunction includes medication and surgery. Unfortunately, medication and surgery are often of limited utility in those with frailty and multimorbidity. There may be significant side effects such as the controversial mesh surgeries that have been used to correct pelvic organ prolapse. Additionally, this care is often provided in a health care system that is siloed and unable to meet the complex needs of these individuals in a time efficient, cost-effective, and compassionate manner. The silo approach often fails to use the biopsychosocial approach that is well validated and supported in the literature.^{1-3,5-13}

Pelvic pain and sexual dysfunction are recognized as multifactorial problems best addressed using a biopsychosocial (BPS) model with a multidisciplinary team approach. Yoga, when used as a BPS approach by health care professionals, can be used as an evidence-based Lifestyle Medicine approach.¹⁵ Medically-delivered yoga in a therapeutic setting can address¹⁵:

1. biologic factors such as sleep, nutrition, hypothalamic-pituitary-adrenal axis (gut-brain) function, bone density, and systemic inflammation (chronic inflammation) predicted risk of symptomatic progression in 4109 men with chronic prostatitis and CPP;¹⁶
2. psychological factors such as mood, stress response, pain perception, quality of life, and personal satisfaction, and

3. socio-cultural-spiritual factors such as self-efficacy, locus of control, personal agency, acceptance, social values, and spiritual health.

The evidence supporting yoga's specific use in geriatric pelvic health is lacking and nonspecific, however, promising. Physical activity in men with prostate cancer is supported in the literature to increase muscle strength, decrease fatigue, and increase aerobic capacity. Some of yoga's reported benefits in cancer populations include improved mental health, spirituality, mood, emotional function, decreased anxiety and depression, increased quality of life, decreased fatigue, and improved sleep quality.⁶ A 2013 study looked at a 14-week feasibility study with a 7-week adherence phase (a 75 minute yoga class) and a 7-week self-selected physical activity phase for men with prostate cancer.⁵ The study found few changes but failed to mention that the mind-body practices used in yoga can affect the brain's perception of pain, diminish systemic inflammation, and improve stress response.¹⁵ Future research considerations should also look at a medical therapeutic yoga program that can be delivered via a licensed physical therapist who is capable of customizing the program to meet individual needs. Multiple studies have reported the best success in using yoga for sexual dysfunction, prostate cancer, or pelvic pain comes when the program is individualized, rather than using a group setting where a generic yoga prescription is applied to everyone. A systematic review reported that in men with CPP and chronic prostatitis, monotherapy was not effective and that treatment required a multimodal approach that addressed the clinical phenotype of the individual.³

A PATHWAY FORWARD

The biopsychosocial approach enjoys overwhelming support in the literature for its use with people with CPP and pelvic girdle pain. Verstraete and Blot⁹ report “no doubt that biopsychosocial factors influence all dimensions of patients' health and that it is clear

that all dimensions interact with one another.” Terms such as “patient-centered care, shared decision-making, universal language, and multidisciplinary care” are embedded in the World Health Organization’s International Classification of Functioning, Disease, and Health.^{10,18} “Worldwide, there is a shift from medical to an integrated biopsychosocial perspective, and the ICF provides the framework.”¹⁰

Yoga expands on the framework of the ICF and moves a step further, by asking the patient to make lifestyle choices that impact not only stress management, but sleep, mindful movement, nutrition, environmental influences such as pollution and relationships, and smoking cessation,¹⁵ all variables identified to be important in screening and managing pelvic girdle pain.¹⁰ Pelvic floor muscle training can also be seamlessly woven into the context of physical therapy through the lens of a model called medical therapeutic yoga. In a 2018 systematic review that looked at 31 trials and 1817 women in 14 countries, pelvic floor muscle training was found to “cure or control” all types of urinary incontinence, including urge and stress incontinence, and that women in the pelvic floor muscle training groups were 5x more likely to report being “cured.”¹⁹ In a multidisciplinary program for CPP women attended 2x/weekly classes and had a home practice for 1x/week x6 weeks. In the small trial of 16 women, all experienced improvement in Impact of Pelvic Pain scores on activities of daily living, emotional well-being, and sexual functioning, as well as their ability to self-manage pain and increase quality of life.¹² Other researchers have reported yoga and mindfulness to be of benefit in men and women with sexual dysfunction and CPP.^{11-14,21}

It may be helpful now to return to the precepts we have been reviewing in the previous articles, Yoga & Fall Risk and Yoga & Osteoporosis. Precepts 1-4, 5, 8, and 9 have been reviewed in the context of reducing fall risk and addressing osteoporosis. The final precepts, 6, 7, and 10 will be addressed below. Application of evidenced-based yoga in rehabilitation and wellness practice should consider the following medical therapeutic precepts¹⁵:

6. Include Ayurvedic and yoga philosophy (sister sciences) methods for easier analysis and prescription.

Ayurveda translated means “science or knowledge (veda) of life (ayur). Yoga and Ayurveda are sister sciences in Indian Vedic studies, documented in 3 ancient texts Charak Samhita, Sushrut Samhita, and the Astanga Hridaya Samhita. The sister sciences provide foundations that gird yoga and Ayurveda philosophy and are not separable without diminishing the impact and efficacy of the other. Clinical application of yoga in rehabilitation can be enhanced by recognizing the symbiotic interrelationship Ayurveda’s Samkhya philosophy and the driving theories of the precepts, optimal arousal, and polyvagal theory. Ayurvedic philosophy aids the individual in overcoming obstructions (kleshas) that cause self-destructive lifestyle choices and helps the individual to create long-lasting change in lifestyle choices and behavior.

7. Include evidence-based sound, music, and voice analysis as therapy to affect allostatic load, systemic inflammation, neural plasticity, and/or ventral/myelinated vagus nerve stimulation via prefrontal cortex, motor cortex, cranial nerves (lower),²¹⁻³¹ and cardiorespiratory neural mechanisms, which also exert influence on pressure systems that affect laryngeal/thoracic, respiratory, and pelvic diaphragms.

It is no secret that burnout is rampant among health care providers contributing to decreased empathy and depersonalization between clinician and patient.^{32,33} A 2019 systematic review demonstrates that yoga is an effective way to help manage stress and improve sleep in healthcare providers.³⁴ Practices such as yoga and mindfulness can be practiced by health care providers during stressful situations while performing their job duties. Additionally, these same techniques can be used by health care providers to address pain complaints as well as sleep problems with their patients. A specific meditation that can be used is the NAP meditation.

- NAP stands for:
 - N stands for neutral larynx.
 - A stands for optimal apposition of three diaphragms, the cervico-thoracic/laryngeal, respiratory, and pelvic diaphragms.
 - P stands for pitch, which can be used via phonation (creation of

sound) or subphonation (under the sound threshold).

The NAP meditation can be performed with or without phonation because of course, there are times where it is socially unacceptable to speak. To perform the NAP meditation, the practitioner (aka person performing the exercise) aligns themselves in a comfortable neutral spine position while performing a craniovertebral nod (as if holding a plum between the chin and anterior throat). Then, TATD breath is used.



- TATD stands for:
 - Transversus-abdominis (TA) assisted
 - Thoraco-diaphragmatic (TD) breath

TATD breath is applied by inhaling through the lower ribs and abdomen and exhaling to engage the pelvic floor, transversus abdominis, and equalize pressure through the cervico-thoracic or laryngeal diaphragm. As the person exhales and engages their core, vocalization can be added (such as humming, singing a song, or chanting AUM).

Put aside the belief that meditation has to happen in a quiet place free from distractions. One of the authors (LG) has taught 40 minute meditation groups to military service members with chronic pain and posttraumatic stress disorder in a gym with rock and roll blaring in the hallway, while the other author (GG) has taught postpartum yoga to mothers with birth trauma while their infants were present in and part of the group therapy experience. Remember that while it might be easier to practice in an area free from distractions, these moments rarely present themselves within the clinical environment. The NAP meditation, goes with us wherever we are and can be practiced in any environment. Both authors use this modality with regularity in different environments: (1) inpatient rehabilitation environment as a modality to manage pain and to improve the stress response resulting from the work environment, and (2) outpatient rehabilitation in pelvic pain across the lifespan and in population health promotion in the arts com-

munity. This simple meditation is usable within any yoga asana (tree, warrior I, warrior II, seated meditation, walking meditation, etc).

IN CLOSING, LET'S EXPLORE the final MTY PRECEPT 10

10. Guide the practitioner to seek the self, pursuant to one's duty/mission (dharma).¹⁵

In clinical practice, the implication is to look at each person as a whole, individual, rather than a broken diagnosis or series of fractured diagnoses that resulted from the current silos-based medical practice paradigm. One of the first questions on a medical intake form should query the patient about goals for care. What is the reason for his/her seeking health care? How does this tie in with life goals, or what she/he considers to be their mission or life's purpose (dharma)?

Clinicians must consider these questions if we are to fulfill a primary role as a health care provider - that of patient advocate. Perhaps our highest calling is to support and campaign for the patient's best outcome and highest quality of life, which means reacquainting medicine with Hippocrates' charge, "To find out what sort of person has a disease, rather than what sort of disease has a person." We must re-introduce facets of social, emotional, spiritual, and occupational patient needs back into the medical process in order to truly embrace and be effective at biopsychosocial care. Medical therapeutic yoga applies the biopsychosocial model for the patient but all cares for the provider in one succinct modality. Try it in your practice and let us know how it goes!

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News from the Health Promotion and Wellness Special Interest Group

The purpose of the Health Promotion and Wellness SIG is to enhance health promotion and wellness practice among physical therapy professionals working with older adults. The SIG supports this purpose through programs at national meetings, webinars, articles in GeriNotes, participation in interSIG journal club and partnerships with other health promotion organizations and initiatives.

There are many opportunities for participation, so please consider getting involved!

- *The HPW SIG Meeting at CSM 2020 is Saturday, Feb 15 8:00 – 8:50 a.m.*
- To participate in or learn more about current SIG activities and projects, contact the SIG chair Gina Pariser, PT, PhD at gpariser@bellarmine.edu.

It Takes Two to Tango: Knowledge Translation Depends on Both Authors and Readers

Part III

Leslie Allison, PT, PhD

Editor-in-Chief, *Journal of Geriatric Physical Therapy*

Welcome to Part III of this now 4-part series written for clinicians committed to evidence-informed practice that leads to improved client outcomes. The purpose of these short articles is to support accurate interpretation of clinical intervention research results, and judicious application of these research findings during clinical decision-making. Better comprehension of clinical intervention research outcomes facilitates improved professional judgement. In Part I, we covered the difference between statistical significance and clinical significance, specifically, the limitations of reporting only statistical significance (p values) and the benefits of reporting, in addition to p values, metrics that represent clinical significance such as the Minimal Detectable Change (MDC) and Minimally Important Clinical Difference (MCID). In Part II, we covered the need for adequate *statistical power*, and additional metrics representing the degree of clinical significance including *effect size*, *relative risk* or *risk ratio* (RR) and *odds ratio* (OR), and the *number needed to treat* (NNT). Here in Part III we will cover *confidence intervals*, including their relationship to, and value beyond, p values. In a subsequent issue, this series will conclude with Part IV, which will include a series summary tied to examples demonstrating the interpretation of clinical research results with application to clinical decision making, and a quick quiz to check your understanding.

THE ELUSIVE “TRUTH”

If we could conduct a test on every single person in a large population of people, eg, 300,000 older adults who have sustained a fall-related hip fracture in the past 12 months, we could learn the “true” mean test score that represents the average performance of that whole

population. That’s the “true population mean.” In real life, it’s not possible to test every single person in a large population: that’s why we can never know with full 100% certainty the true population mean. We know it exists, but cannot obtain it. Instead, researchers select and test a study “sample,” a small group of representative people from that larger population. From the test results found in the smaller study sample, inferences about the larger population are drawn. But how accurate are these inferences? How certain can we be that the study sample-based estimate of the true population mean is close to the true population mean? This is important for clinicians to know because while your clients with a fractured hip were not in the sample that was tested, they are members of the whole population to which the study findings relate.

Reported p values can tell us the probability that the test result obtained in the study was or was not due to chance alone. If p values are ≤ 0.05 , they suggest there is a statistically significant difference between treatment versus control groups, or a statistically significant change over time (pre- versus post-testing), that was probably not due to chance. However, p values cannot tell us how close a study sample-based estimate of the true population mean is to the actual true population mean, or how accurate the estimate is, so they don’t help readers understand the clinical significance of study results.

A *confidence interval* (CI), on the other hand, provides a range of values (values could be means, medians, differences between means, effect sizes, risk ratios or odds ratios, etc) in which the unknown true population value is likely to fall.¹ The CI is an estimate of the range within which the true result for the whole population would fall

if the study is conducted many times with many different samples from the population of interest. For example, the 95% CI of the between-group difference in treatment outcomes in a single study indicates the range in which the differences between the two treatments would fall on 95% of the occasions, if the study is carried out many times.² There are two keys to correct interpretation of the CI. First, the CI range of values is likely (though not certain) to contain the true value for the whole, larger population (Figure 1A), and does NOT offer any information about the study sample. Second, the *confidence level* (eg, 90%, 95%, 99%) represents the concept that *if the study was repeated many times* with different samples of study participants taken from the same whole, larger population, then (for example) 95% of the 95% CI ranges would contain the true value for the whole, larger population (Figure 1B). Note that 5% of the 95% CI ranges would not contain the true population value, so we never know whether a single study 95% CI value by itself contains the true population value or not. We can only be 95% confident that it does.

For example, a researcher may report in their results: “For this study sample, the between-group difference in post-intervention mean Berg Balance Scale scores was 6.8 points (95% CI: 3.4, 10.2).” A reader may then say: “I am 95% confident that the true between-group difference in post-intervention mean Berg Balance Scale scores for the whole population lies between 3.4 and 10.2.” Note that the researcher uses known data from a smaller sample to calculate the CI, while the reader uses the reported CI to make an inference about the true-but-unknowable performance of the whole, larger population to which their clients belong.

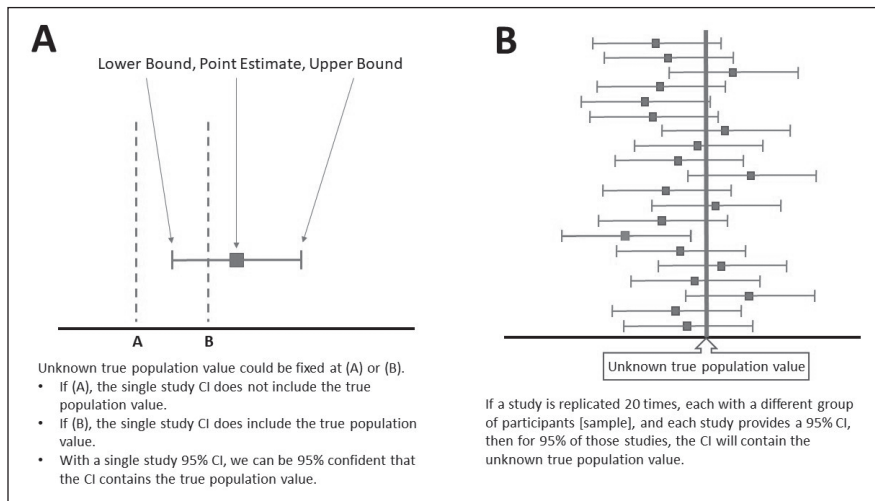


Figure 1. Confidence intervals (CI) in relation to the unknown true population value. (A) A calculated CI may or may not actually include the true population value. (B) Most, but not all, calculated CIs will contain the true population value.

The first stated value (eg, from above, 6.8) is called the “point estimate.” In this example, the point estimate value is the between-group difference in post-intervention mean scores. The point estimate could be a different value obtained from data in the study, such as the effect size. If the study measured categorical or dichotomous variables, the point estimate could also be a proportion, ie, risk ratio or odds ratio. The smaller value in the range (eg, 3.4) is called the “lower bound” [boundary] or “lower limit”, and the higher value in the range (eg, 10.2) is called the “upper bound” or “upper limit”. This range is also known as the Margin of Error (MoE). The distances between the point estimate and the two boundaries may or may not be symmetrical.

Confidence intervals convey both the degree of certainty in, and range of accuracy of, the estimate.

When calculating a CI, the researcher can specify how much uncertainty they are willing to accept. Typically, *confidence levels* for a CI are set at 90%, 95%, or 99%, representing a willingness to accept uncertainty at rates of 10%, 5%, and 1%, respectively. All other factors being equal, for any one sample, a 90% CI will be narrower than a 95% or 99% CI because the researcher has decided to accept a higher degree of uncertainty at 90% than at 95% or 99% (Figure 2A). A narrow 90% CI, with lower and upper bound values closer together, captures fewer possible values:

this reflects relatively more uncertainty about whether or not the true population value lies within the narrow range. A wide 99% CI, with lower and upper bound values further apart, captures more possible values; this reflects relatively less uncertainty about whether or not the true population value lies within the wider range. This may seem counter-intuitive, but if you imagine conceptually that “near certainty” lies within the range, and “uncertainty” lies outside the range, then a narrower range has more uncertainty on the outside than a wider range.

Above we considered three CIs for the same sample in a single study (calculated with three different confidence levels at 90%, 95%, and 99%). If in-

stead we look at one study repeated 3 times, each time with a different sample of participants from the same larger population, using a single confidence level of 95%, we will see that differences between samples can cause the width of the 95% CI to be different (Figure 2B). A small sample size with higher variability in scores will result in a wider CI range, while a larger sample size with lower variability in scores will result in a narrower CI range. In this case (constant confidence level but different sample sizes and score variability), the width of the CI range reflects the *accuracy* of the estimate, with a narrower range being more accurate and a wider range being less accurate. The level of confidence in the CI estimate is not different, but the accuracy with which the estimated CI range “zeros in” on the unknown true population value is different. Ideally, the researcher would achieve an accurately estimated CI range in which they have a high level of confidence (low uncertainty).

Since for any single study a 99% CI provides a more certain estimate than a 95% CI, why not always use the 99% CI? The researcher’s choice of confidence level is influenced by several factors, including but not limited to (1) the ability to obtain large study samples, and (2) the seriousness of the outcome being studied. Larger sample sizes are required to accurately obtain a 99% CI than a 95% CI, and larger samples are more difficult to achieve. Using our example population of 300,000 older adults, and

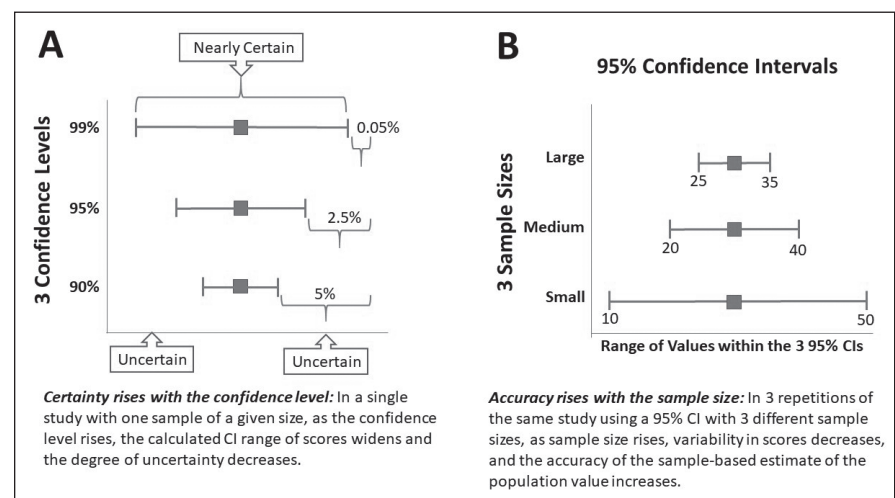


Figure 2. Confidence intervals (CI) convey information about the quality of the estimate. (A) The confidence level reflects the degree of certainty. (B) The CI width reflects the degree of accuracy.

assuming a 5% MoE, a researcher might need 384 study participants for a 95% CI, but 663 study participants for a 99% CI.² If the study outcome measure is not a critical health issue, such as an increase in range-of-motion or gait speed, a 90% or 95% CI will suffice. However, when the outcome being studied is a seriously negative health consequence, such as injury or death, then it is crucial to have more certainty, and a 99% CI would be preferred.

Confidence intervals convey both statistical and clinical significance.

Unlike p values, which provide information regarding only statistical significance, CIs can provide information about both the statistical and clinical significance of study findings. By clinical significance we mean first, the magnitude and direction of the effect of the intervention, and second, the relationship of the CI range to the known Minimal Detectable Change (MDC) and/or Minimally Clinically Important Difference (MCID).

Confidence intervals and statistical significance: When we compare two CIs in which the point estimates represent the sample-based estimate of the true population mean (for example, the estimated population mean in a treatment group versus the estimated population mean in a control group), if the two CI lines overlap there is no statistically significant difference. If the two CI lines do not overlap, there is a statistically significant difference (Figure 3A). When the point estimates represent *differences*

between means, effect sizes, risk ratios or odds ratios, then statistical *non-significance* is visually reflected when the CI line crosses “the line of no difference” (Figure 3B). If the point estimate value represents a difference in measured scores, for example, the between-group difference in mean post-intervention Berg Balance Scale scores, then the line of no difference rests at 0. This is because we obtain a difference in scores by subtraction (for continuous data): if there is no difference in scores, then measured score X_{group1} minus measured score $X_{\text{group2}} = 0$. If the point estimate value represents a difference in probabilities or proportions, for example, risk ratios or odds ratios, then the line of no difference rests at 1. This is because we obtain probabilities and proportions by division (for categorical data): if there is no difference in proportions, then proportion Y_{group1} divided by proportion Y_{group2} equals 1. For both types of point estimates, if the CI line crosses the line of no difference, then there is no statistically significant difference. If the CI line does not cross the line of no difference, then there is a statistically significant difference.

Confidence intervals and clinical significance: Visual inspection of the CI range in relation to the line of no difference also yields information about the magnitude and direction of the difference reported in the study. The further away the point estimate is from the line of no difference, the greater the magnitude of the difference, either positive or negative. For a positive outcome

measure (eg, odds of achieving independent ambulation without an assistive device), if the reported difference favors the treatment group over the control group, the point estimate will be on the positive side of the line of no difference. If the reported difference favors the control group over the treatment group, the point estimate will be on the negative side of the line of no difference. For a negative outcome measure (eg, risk of sustaining a hip fracture), the converse is true.

When the point estimate represents the intervention magnitude, for example the effect size, we can use what we know about the value of various effect sizes to better interpret the reported CI. In Part II of this series we mentioned that effect sizes, either positive or negative, are categorized as *large* if they are > 0.8 , *moderate* if between $0.5 - 0.8$, *small* if between $0.2 - 0.5$, and *trivial* if < 0.2 . Clinically we can interpret a positive effect size CI in the moderate to large range to mean that the intervention would probably or almost certainly be beneficial, while a negative effect size CI in the moderate to large range would mean that the intervention would probably or almost certainly be harmful (Figure 4). If the effect size CI is wide, especially if it is larger on one side than the other, the clinician should consider that the location of the point estimate may not accurately represent what might occur for any individual client. For example, if the effect size point estimate is at 0.42, but the upper bound of the CI extends to 0.86, then for most clients the intervention is possibly beneficial with a small effect, but for some portion of clients given this intervention, the outcome will almost certainly be quite beneficial with a large effect. As mentioned in Part I, it is very helpful to clinical readers for authors to conduct a secondary analysis of their results to determine differences between “responders versus non-responders,” or in this case, what was different about study participants who did very well (large beneficial intervention effect) compared to study participants who improved only a little (small beneficial intervention effect). This permits clinical readers to better judge what degree of improvement the individual client immediately in front of them is likely to achieve.

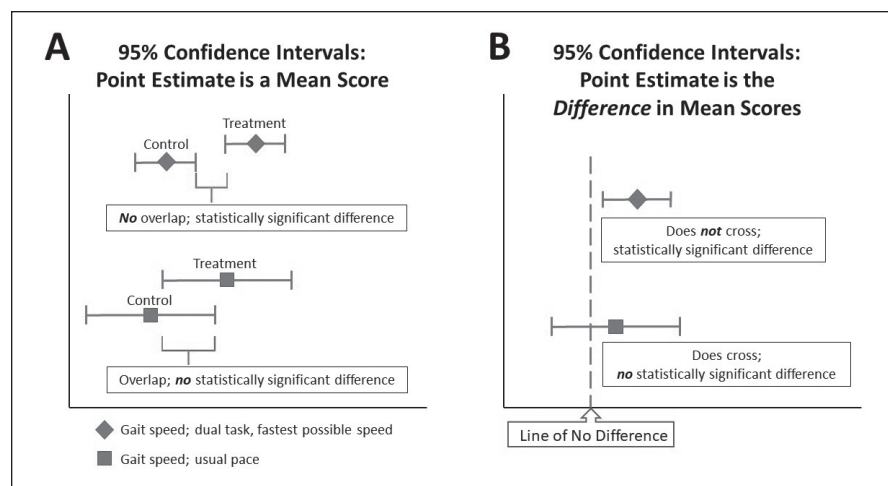


Figure 3. Confidence intervals (CI) convey information about the statistical significance of study results. (A) One CI in relation to another. (B) Two CIs in relation to the line of no difference.

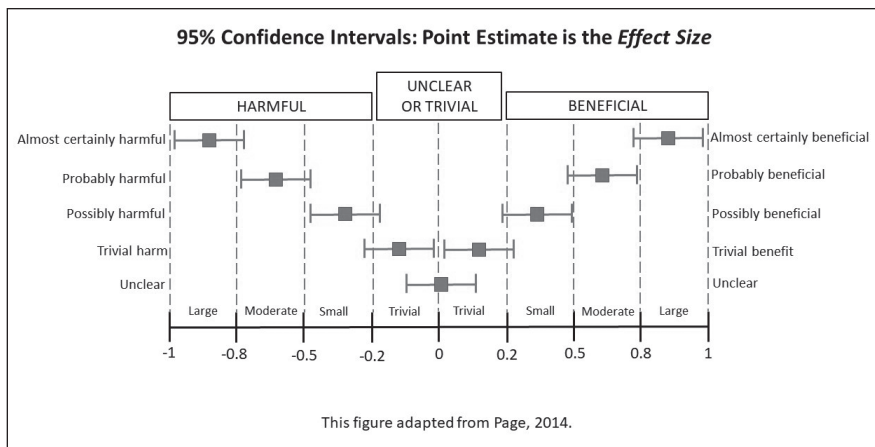


Figure 4. Confidence intervals may convey information about the magnitude and direction of the treatment effect.

Confidence intervals may contribute further to understanding the clinical significance of results when interpreted in relation to the reported MDC and/or MCID; see Part I for a full explanation of MDC and MCID. For a measured variable, the MDC indicates how much change in the score for that variable is needed to be sure that the change in score wasn't just measurement error, and the MCID indicates how much change in that variable is needed for the change to be perceived as real and important by clinicians or patients, depending on who was surveyed. If the CI range for a mean [pre- versus post-test] change score falls below the MDC, it is unlikely that your client will achieve any real change, whereas if it falls above the MDC, it is likely that your client will achieve real change over and above any measurement error. If the CI range for a mean change score falls below the MCID, it is unlikely that your client will achieve the degree of change perceived as real or

important by those surveyed (clinicians or patients), whereas if it falls above the MCID, it is likely that your client will achieve a degree of change that is perceived as real or important.

Because the MDC, clinician MCID and patient MCID values for a measured variable are often not the same, clinical interpretation of the CI in relation to these values requires care. Let's consider the following example of pre- versus post-test change in Berg Balance Scale (BBS) scores in older adults post-stroke (Figure 5). The MDC in persons with chronic stroke has been reported as 4.66 points, while the MCID for clinicians and patients post-stroke has been reported as 5.24 and 12.5 points, respectively.^{3,4} If a study author reports that following intervention the mean change in BBS score for patients post-stroke was 6.8 (95% CI 3.4, 10.2), then you can be 95% confident that your client post-stroke would achieve real change ($6.8 > 4.66$ MDC), and as the

therapist you would perceive this change to be real and important ($6.8 > 5.24$ therapist MCID), but your client would not perceive this amount of change as real and important ($6.8 < 12.5$ patient MCID). If we consider the CI range, we can also predict with 95% confidence that (1) not all clients post-stroke who receive this intervention will achieve real change, or change that is perceived by therapists as important (lower bound $3.4 < 4.66$ MDC and < 5.24 therapist MCID), and (2) almost no clients will perceive even the maximum expected amount of change to be important (upper bound $10.2 < 12.5$ patient MCID).

In many rehabilitation studies, sample size is small, statistical power is low, and statistically significant change is not demonstrated post-intervention (p values > 0.05). However, if the CI meets or exceeds the MDC and/or MCID, then the results may be clinically significant even if they are not statistically significant. Conversely, even if sample size is very large and study results are statistically significant (p values ≤ 0.05), if the CI does not meet or exceed the MDC and/or MDIC, then the results may not be clinically significant.

In a systematic review with meta-analysis, multiple confidence intervals from different studies of the same intervention may be reported.

A systematic review (SR) is a specific research approach that identifies many relevant studies on a certain topic, screens them for scientific quality, excludes poor quality or biased studies, then analyzes the remaining included studies. Often, SRs include a meta-analysis that uses prescribed statistical analysis techniques to combine, or pool, the results of individual studies to provide an overall estimate of intervention effects. Most SRs with a meta-analysis include one or more figures that show multiple CIs (from multiple studies) to summarize the findings; these figures are called *forest plots*. Studies with larger sample sizes are given greater weight in the pooled overall estimate, and the size of the CI point estimate symbols on the figure will reflect the relative sample size.

Let's consider a SR with meta-analysis that investigated the effects of whole body vibration (WBV), compared to no intervention (control) and active

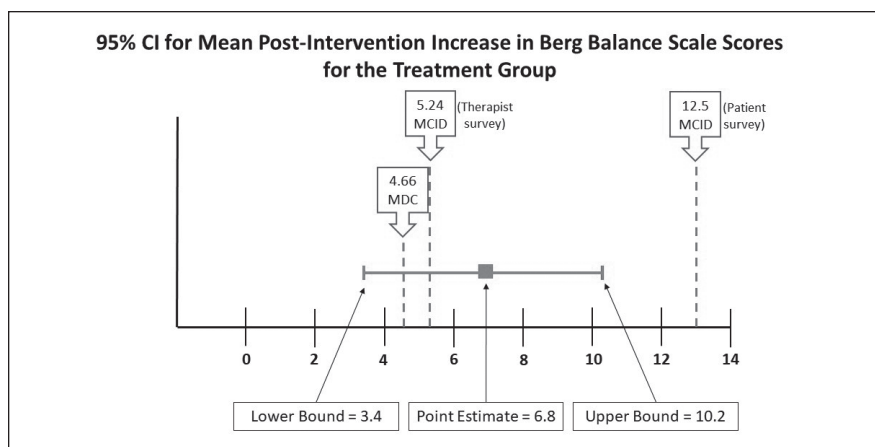


Figure 5. Confidence intervals convey information about the clinical significance of study results.

exercise, on bone mineral density and isometric knee extensor strength in older adults. (Such a study does exist, see Lau et al, 2011.⁵) In Figure 6, I created two completely hypothetical forest plots presented as they might appear in such a study. You will see that [hypothetical] data for each study, as well as the total pooled estimate, is provided along with the forest plot. On a forest plot, the total pooled estimate is often represented as a diamond.

What is your interpretation of the data summarized in these forest plots? Let's assume that your older adult client is an average member of the whole population from which the study samples were drawn. Overall, would you estimate that she would be likely to achieve increased leg strength from a WBV intervention? In the top forest plot (WBV vs. Control), two of the CIs indicate statistically significant differences in favor of WBV (does not cross the line of no difference) while one of the CIs indicate no significant difference between groups (crosses the line of no difference). Furthermore, the CI for the total pooled estimate crosses the line of no difference, meaning you would not expect any statistically significant difference in leg strength outcomes between those two groups. In the bottom forest plot (WBV vs. Active Exercise), all CIs from the 3 included studies and the total pooled

estimate cross the line of no difference, meaning you would not expect any statistically significant difference in leg strength outcomes between those two groups. Could you expect clinically significant changes, even if you do not expect statistically significant changes? To answer this question, we would have to examine the CI ranges relative to the MDC and MCID values for leg strength, which are not presented here.

SUMMARY

Confidence intervals are calculated at selected confidence levels (90%, 95%, 99%) that represent the degree of confidence (ie, certainty) we can have that the true value of interest for the whole population [to which your client belongs] lies within the CI range. At any given confidence level, the width of the CI reflects the relative accuracy of the estimated true value. Confidence intervals convey information about both statistical and clinical significance. When point estimate values represent mean differences between groups, effects sizes, risk ratios or odds ratios, CIs provide information about the magnitude and direction of the intervention effect that can support clinical decision making. If CIs are considered relative to MDC and MCID values, they offer information about whether you might expect that an intervention would achieve a degree of change that is real (larger than

measurement error) and is perceived as real and important by therapists and/or patients.

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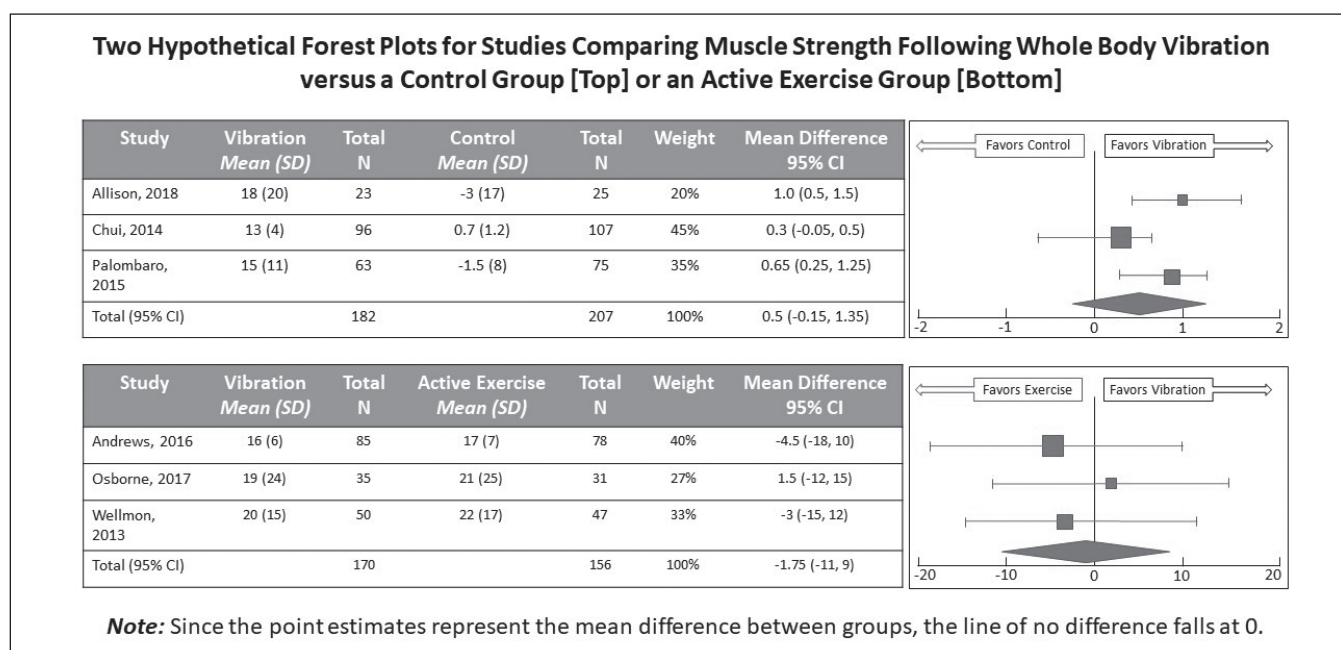


Figure 6. Hypothetical forest plots illustrate the use of confidence intervals in presenting the results of a systematic review and meta-analysis.

Community-based Tai Chi for Fall Prevention

Kristi Hallisy, PT, DSc

HISTORY OF TAI CHI CHUAN

Tai Chi Chuan (also known as Tai Ji Quan) is a traditional Chinese martial art exercise with emerging worldwide popularity due to its many health benefits. Regular practice of this mind-body exercise improves aerobic capacity, muscular strength, balance, psychological well-being, and health-related quality of life.¹⁻³ Evidence for its role in falls prevention among older community-dwelling adults is strong.⁴⁻⁶ This descriptive paper defines Tai Chi (TC), its Chinese origins, mind-body principles, health benefits, and acceptance as a falls prevention tool for older adults.

Tai Chi Chuan (supreme ultimate boxing) is a mind-body exercise that enhances relaxation skills, mental focus, and physical function.^{2,3} Tai Chi entered American scientific literature in 1981 where it was hailed for its efficient and effective physical movement patterns and preventative health benefits.^{7,8} Today, TC is regarded as a mild-to-moderate intensity aerobic exercise that enhances leg strength, balance, mobility/gait, and a myriad of other physical, mental, emotional, and psychological health conditions.¹⁻⁸ Many chronic health conditions commonly seen in the older adult are amenable to the health benefits of TC.

Evidence for Tai Chi. The breadth and scope of TC research has advanced steadily since the turn of the century. There is ample scientific evidence that TC fights back on the chronic diseases of aging. An excellent systematic review (SR) by two family physicians, Huston and McFarlane (*Canadian Family Physician* 2016), documented excellent, good, and fair levels of evidence for TC. An update PubMed search (last 5 years, ie, Nov 2014 – Nov 2019) using key words “tai chi and _____” reveals the following number of meta-analyses (MA) and SR on Huston and McFarlane’s original health conditions. While the evidence for falls prevention in older adults has long been excellent, data also suggests excellent evidence of benefit

for osteoarthritis (9 MA, 16 SR), Parkinson’s disease (5 MA, 11 SR), chronic obstructive pulmonary disease (7 MA, 11 SR) and cognitive function (7 MA, 20 SR). Good evidence of benefit can be found for depression (20 MA, 39 SR), cardiac rehabilitation (4 MA, 4 SR), stroke rehabilitation (10 MA, 11 SR), cognitive impairment (4 MA, 12 SR), and dementia (5 MA, 10 SR). There is growing evidence for the use of TC for fibromyalgia (2 MA, 7 SR), hypertension (3 MA, 4 SR), bony density/osteoporosis (5 MA, 6 SR), and enhancement of quality of life for patients/clients with cancer (6 MA, 12 SR). In regards to the national physical activity guidelines for older adults, there is excellent support for multi-component balance exercise (19 MA, 40 SR) and strength (9 MA, 29 SR). In the last 5 years, there has also been a surge in literature regarding the use of TC for well-being (9 MA, 107 SR) and sleep (9 MA, 16 SR).

FALLS IN THE OLDER ADULT

Falls and fall-related injuries among older adults aged 65 years and older are a substantial challenge to public health worldwide.^{9,10} Falls are a costly (financial, mobility, quality of life) public health challenge and the leading cause of injury-related morbidity and mortality among older adults in the United States.¹⁰ Given the world’s rapidly aging population, sustainable health promotion interventions to reduce older adults’ risks of falls are needed.¹¹

Exercise as a Falls Prevention Tool

Three hours of ongoing mid- to high-level balance challenge exercise per week is the single best intervention for fall prevention.¹² Exercises for preventing falls in older community-dwelling adults must safely move the center of mass over the base of support, progress from double-to-single leg support, and reduce reliance on the upper limbs for support.¹²

Tai Chi is one example of a multicomponent exercise (eg, yoga, dance,

ping pong) that meets these balance guidelines for older adults.¹³ Data suggests that exercise prescription and instructional methods for community-based TC courses is highly variable.¹⁴ The National Council on Aging reported TC was most beneficial if practiced *cumulatively for at least 50 hours* either one-hour, 2 times per week for 6 months or one-hour or 3 times a week for 4 months.¹⁵ However, delivery of long (> 3 months) community-based exercise programs can be difficult. As ongoing TC practice is necessary for protective benefits, adoption of practice habit formation (exercise adherence) among TC practitioners is imperative.^{12,15-16} Table 1 displays current CDC evidence-based TC for falls prevention.¹⁷

Tai Chi Prime is a recently researched TC course aimed at improving balance and promoting home practice in older adults with falls risk.¹⁸ Stakeholder engagement with 3 groups (TC instructors, community centers, and older community-dwelling adults) informed key study decisions about development, feasibility, implementation, and sustainability of this community-based TC program for fall prevention. This short course (6 weeks) met twice weekly for 1.5 hour sessions (18 hours) and used the Tai Chi Fundamentals Adapted Program with optional side support as its TC training tool.¹⁹ This program was unique in that it contained an embedded home practice curriculum to augment TC training to develop home practice habit.²⁰ *Tai Chi Prime* achieved significant results in the 3 STEADI physical measures (leg strength [30-second Chair test], gait/mobility [Timed-Up-and-Go], tandem balance); cognition (Trail-making Test B) and balance confidence (Activities-specific Balance Confidence scale).¹⁸ As of October 18, 2019, *Tai Chi Prime* has been approved to be included on the list of the evidence-based falls prevention programs eligible to be supported by U.S. Administration for

Table 1. Centers for Disease Control and Prevention (CDC) and National Council on Aging (NCOA) List of Sanctioned Evidence-based Tai Chi Programs for Effective Falls Prevention

Tai Chi Programs in the CDC's Compendium of Effective Fall Interventions, 3rd edition (2015) https://www.cdc.gov/homeandrecrreationalafety/pdf/falls/cdc_falls_compendium-2015-a.pdf	
Tai Chi Moving for Better Balance (Li, 2005)	1-hour, 3 times a week for 26 weeks
Central Sydney Tai Chi (Voukelatos, 2007)	1-hour per week for 16 weeks
Simplified Tai Chi (Wolf, 1996)	The 15-week program included: • Twice weekly 25-minute group sessions • Weekly 45-minute individual contact time with the instructor • Twice daily 15-minute individual practice sessions at home without an instructor
Tai Chi Programs found in the National Council on Aging (NCOA) Collection (October 2019) https://www.ncoa.org/healthy-aging/falls-prevention/	
Tai Ji Quan: Moving for Better Balance	1-hour, 2 times per week for 24 weeks
YMCA Moving for Better Balance	1-hour, 2 times per week for 12 weeks + Encourages 2-hours of home practice per week
All other NCOA Evidence-Based Falls Prevention Programs for Older Adults located at: https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults-2/	

CDC (2015) Tai Chi Original References:

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Community Living (ACL) Title III-D or other applicable discretionary funding from ACL.

Tai Chi Prime fostered TC practice habit formation by 3 mechanisms: (1) formalize home practice coaching; (2) *Fab Four Basic Moves* (Figure 1) for daily habituation, and (3) *Tea Time* for social connectedness, exercise support and reinforcement.¹⁸ Formalize home

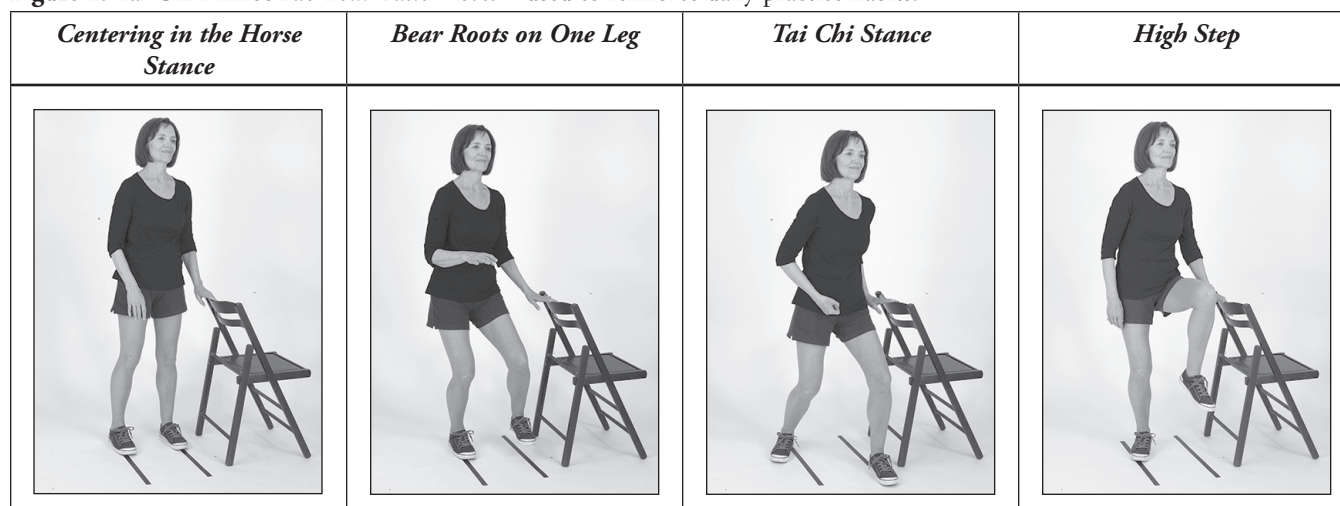
practice coaching was based on Bandura's Social Cognition Theory (fostering self-efficacy).²¹ Each class contained an educational component to reinforce practice habit formation, answer participant questions, and foster TC training experiences. Instructors modelled and participants developed individualized TC outcome goals and practice habits. Home practice tools (eg, class handouts,

TCF-Adapted book and DVD, Practice Planners and Trackers) were supplied.

Why is Tai Chi Effective for Falls Prevention?

Tai Chi, like other multi-component balance exercises, inherently satisfies Sherrington's best practice guidelines for falls prevention.¹² Focused on anticipatory balance strategies, TC par-

Figure 1. Tai Chi Prime's *Fab Four Basic Moves* – used to reinforce daily practice habits.¹⁸



Used with permission from Tai Chi Health.¹⁹

ticipants mindfully move the center of mass over the base of support in multiple directions. Stepping progressions foster double-to-single limb support. Participants may progress balance challenge by decreasing use of the upper extremities for support. Like all balance retraining exercises performed in physical therapy, TC can readily be modified to optional side support, walker support, or seated versions if necessary.¹⁹

Tai Chi is inherently a mindful exercise (Table 2). Evidence supports that TC, a mind-body exercise, improves both postural control and cognition.²² A recent study demonstrated that experienced TC practitioners had lower dual-task costs to postural control in elliptical area, and performed better on the digit span, trail making, and category naming tests as compared to TC-naïves.²² These group differences and associations were independent of age, body mass index, education, and physical activity level.²²

Tai Chi participants go through the stages of motor control – cognitive, associative, and automatic, as they practice and learn TC movements. Skilled TC instructors (especially physical therapy professionals trained in motor learning and the use of knowledge of performance and knowledge of results feedback) can readily direct the participant's TC program in a safe, stepwise fashion. The Tai Chi Fundamentals Program, originally designed to make TC accessible to persons of all ages and abilities

uses a neuromuscular progression of *Basic Moves* fostering incremental success.²³ This in turn helps patient confidence and self-efficacy to exercise on their own, which is the precise goal of any therapist working with a client with balance impairment and falls risk.

Presently, there is ongoing collaboration with health professionals, TC experts and community-based health and fitness providers to bring the benefits of TC to community-based older adults for falls prevention.^{17,22-28} There are several TC options for falls prevention in the literature (see Table 1). Other evidence-based methods of mid- to high-level balance challenge exercise are also available to older adults—Stepping On²⁹, Otago Exercise,³⁰ and a Matter of Balance³¹ to name a few.

In the end, empowering older adults to learn the facts about falls is the first step. All community-based programs and public health venues should encourage older adults to talk to their health care providers about falls risk and prevention. Encourage eye exams as poor vision, cataracts and ill-fitting glasses are major contributors to falls. Encourage annual foot exams and proper footwear for all activities. Encouraging older adults to adhere to the National Physical Activity Guidelines to improve aerobic capacity, overall strength, and balance is imperative.¹⁹ There are many falls prevention programs, but group community-based TC programs offer physi-

cal, mental and social benefits that may foster long-term exercise adherence and the promise of a safer tomorrow.

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Table 2. Tai Chi Fosters Mindful Movement (Dual Task Training) to Aid in Balance^{19,23}

- ✓ *Mindfulness* – centering; nonjudgmental focus on the present moment; enhanced awareness of mind, body, breath and surroundings
- ✓ *Postural alignment* – body upright; weight evenly distributed on feet; focus on postural alignment and proper biomechanical alignment with all movements
- ✓ *Breath Awareness* – diaphragmatic breathing; relaxed natural breath promotes flow of Qi (Chinese life force) throughout the body; trains breath and body awareness during movement
- ✓ *Active Relaxation* – a state of inner stillness while in motion; awareness of all parts of the body; releasing excessive tension resulting in efficient (minimal) effort to move the body
- ✓ *Slow movement* – relaxed, continuous movement with a flexed knee posture builds lower extremity strength and endurance; if seated, strength comes from the core muscles as you shift weight
- ✓ *Weight Separation* – postural control and balance; moving the center of mass over the base of support; promotes progression from double-to-single limb support; decreases need for external support
- ✓ *Integrated Movement* – tai chi energetics (moving like a string of pearls) creates flowing, fluid motion increasing degrees of freedom to dynamically control the body in space

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From A RESIDENT'S CORNER

Highlighting the Cincinnati VAMC Gerofit Program

Christian A. Goering, PT, DPT

A prevalent trend in health care is integration of preventive medicine and holistic patient care. The Veterans Health Administration has made this shift a central focus in establishing innovative programs. One of those programs is Gerofit, an independent wellness initiative for veterans aged 65 and older.¹

Gerofit was developed at the Durham, North Carolina Veterans Affairs Medical Center (VAMC) and the Geriatric Research, Education and Clinical Center in 1986 by founders Dr. Harvey Cohen and Dr. Miriam Morey.^{2,3} The program goal is prevention of functional decline in older adult veterans through a supervised, facility-based, and custom 3-day-per-week exercise program.¹ In addition to specific exercises to increase strength, flexibility, balance, and cardiopulmonary endurance, group-based exercise classes such as Tai-Chi, general balance, and yoga are also offered. Each facility varies in terms of equipment. Participants generally have access to free weights, resistance bands, balance training equipment (foam pads and BOSU®), treadmills, ellipticals, and weight machines such as a seated leg press. Veterans are eligible for Gerofit inclusion if they are 65 years of age or older and receive clearance from their primary care provider. Exclusions from participation include unstable cardiac disease, oxygen dependency, moderate to severe cognitive impairment, and less than independent ability to complete transfers or activities of daily living.¹ Veterans may remain enrolled in the program as long as they wish, unless a change in medical status prevents continued participation.¹

Assessments by physical therapists are completed at initiation into the program, 3 months, 6 months, 12 months,

and yearly thereafter.¹ Results are recorded in a national database to track progress.¹ The following qualitative and quantitative data are gathered and compiled into the database: age, blood pressure, waist circumference, height, weight, 10 Meter Walk Test, gait speed, Six Minute Walk Test (6MWT), Five Times Sit-to-Stand, 30 Second Chair Rise, Eight Foot Up and Go, Arm Curl Test, Short Physical Performance Battery (static feet side-by-side, semi-tandem,

The program goal is prevention of functional decline in older adult veterans through a supervised, facility-based, and custom 3-day-per-week exercise program.¹

tandem), physical function subscale (SF-36), Gerofit comorbidity index (to allow veterans to identify any other conditions), post-traumatic stress disorder (PTSD) questionnaire (to identify how Gerofit impacts those with PTSD), global health scale, Psychological Need Satisfaction in Exercise Scale perception questionnaire (looks at level of camaraderie), and physical function testing questionnaire (asking about falls, fear of falls, emergency department visits, hospitalizations, health perception, and program satisfaction).

Since inception, Gerofit programming has expanded to other Veterans

Affairs (VA) facilities across the United States.³ In fact, the VA has declared the Gerofit program a Best Practices program.¹ March 2019 marked the first anniversary of the Cincinnati VAMC Gerofit program, which has 49 active participants including 6 members with one year of program involvement. The Cincinnati VAMC Gerofit program is unique in that it is held within a PT department; whereas, other Gerofit programs are held in a gym or exercise facility. Another distinction of the Cincinnati program is that it is managed by staff physical therapists, PTAs, or physical therapists in geriatric and neurologic residency programs. Gerofit programs in other locations are primarily managed by other health professionals including kinesiologists, exercise physiologists, registered nurses, and physicians.

The Cincinnati VA Gerofit program consists of both personalized exercise and group classes. Each participant works with the physical therapist during assessments to identify exercise goals and areas for improvement. Typical aspects of concern include gross strength of major muscle groups, components of walking, cardiovascular endurance, flexibility, and balance. Group classes: Tai-Chi for Health, Parkinson Wellness Recovery exercise, line dancing, walking, general balance, and yoga are recommended as appropriate. These classes are optional but regularly attended and enjoyed by veterans. Separate from the national database, the Cincinnati Gerofit program is also collecting local data using the Falls Efficacy Scale International and the Four-Square Step Test (FSST) to investigate participant falls and fall risk.

The benefits of the Cincinnati Gerofit program have been noted by

both the participants and therapists. Within the first year, a clear majority of participants demonstrated improvements in periodic testing, including faster gait speeds, increased number of stands completed during the 30 Second Chair Rise, improved distance during the 6MWT, and reduced time to complete the FSST. Cincinnati Gerofit participants have remarked upon benefits including improved balance, enhanced energy levels, better confidence, staying in shape, gaining strength, striving for an overall healthier lifestyle, solidarity, and allowing them a “second chance.” For example, one 70-year-old participant experienced debilitating hip and ankle pain prior to joining the program. He was treated by physical therapy for his low back pain and subsequently referred to the Gerofit program. Since joining the program in May 2017, he has made significant advancements in functional tolerance, ankle mobility, gait mechanics, and reduced pain levels. His view of the Cincinnati Gerofit program: “It has improved my quality of life. I was almost in a walker when I started this program, and now I can go up and down stairs without limping or dragging

my leg.” These are his 3 reasons to recommend other veterans to join Gerofit: “[First,] all of the therapists are very concerned about my condition. They are really interested and I have never felt that way anywhere else. Second, veterans here are like me and the camaraderie motivates me to come back and they encourage me. Third, I am seeing results.”

As the older adult population continues to grow, it will be critical to address and encourage healthy aging. The Gerofit program provides focus on the exercise needs of aging adults while reducing falls and the risk of falls. Community-based wellness exercise programs, like Gerofit, should be integrated into both public and private health sectors to effectively address the goal of promoting healthy aging in our older adult population.

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Maintaining and Expanding Clinical Competency While Working PRN

Anne Davenport, PT, DPT

THE TRANSITION TO PROFESSIONAL

While in school, the list of my interests within the physical therapy profession had become very long, and I only identified a few settings and patient populations I did not see myself working with. I knew that inpatient rehabilitation and acute care were areas that I enjoyed, but I was also passionate about working with the active older adult population I had encountered during clinical rotations in Western North Carolina. In addition to feeling hesitation on choosing only one setting, I also had some personal factors that were affecting my professional decisions. Within the year, my husband's career would potentially move us across the country. Recently, a close family member had passed away at a young age, causing me to reflect on my life, as well as shift my perspective on where and how I wanted to spend each valuable day. With uncertainty in my near future, the willingness to learn and experience in most settings and with most populations, and the desire for more flexibility than the average full-time position allows, I decided working as a PRN physical therapist was the best fit for me at this stage in my career.

What is PRN?

PRN is an abbreviation for the Latin phrase, "pro re nata" which generally translates to "as the circumstance arises." Also known as "contract" or "per diem," these positions are, simply, on-call therapists. PRN physical therapists/physical therapist assistants are typically used for extra coverage when census is high, full-time staff are on vacation or sick, or may even manage a more regular schedule, such as Sundays only or two afternoons a week. PRN employees can frequently work as often, if not more, than a full-time position, or may only work a couple days a month. Sometimes,

they will be able to coordinate a schedule days or even months in advance in the case of a vacation request. Often, a request will come in the night before or morning of the day needed. A PRN employee may only work a handful of hours up to a 10-hour shift. All of these characteristics will be dependent on the facility or company and the approach the Rehab Director takes.

Some of the drawbacks of these positions are:

- They ordinarily come without employee benefits.
- When census is down, they are the first one affected.
- As above, if the work is not there, they are not working. Some PRN employees choose to work for 2 to 3 companies in order to ensure a consistent level of hours.
- Often, they are in a pool with several other therapists, creating a sense of competition for hours.
- As an employee only coming in for one shift or a handful of days here and there, the opportunity for the patient connection decreases.

Highlights of a PRN position are:

- Due to lack of benefits, employers will usually offer a higher hourly rate.
- This is *hourly*, so any time put in is paid. A salaried employee may consistently put in over 40 hours a week, though their salary reflects an average of 40 hours per week.
- There may be more freedom with health care insurance and retirement planning.
- The employee sets when they are available and when they are not. Most rehab directors understand and respect this.
- There will likely be a lot of variation, especially if the PRN employee works in different settings and for different companies. Employees are rarely bored with a PRN schedule.

While there are even more pros and cons to reflect upon when considering PRN as an option, I personally saw it as an opportunity to expand my clinical skill set, explore several different settings and patient populations, as well as step (Leap, let's be honest!) outside of my comfort zone and encourage growth. Without the structure and "safety" of a full-time position, here are the steps I take to maintain and expand my clinical competency as a PRN physical therapist.

KEEP A "WHITE SPACE" LIST

While beginning each new clinical rotation during school, we were encouraged to identify and address "white spaces," or opportunities for growth within our current body of knowledge. Throughout the rotation, we would address the gap with the help of our clinical educators, faculty, and available resources. We would then reflect upon each journey to determine how we managed the objectives and learning process and what could deepen the knowledge in the future.

Using this same framework, I keep a White Space List on my clipboard at work. When I encounter a technique, a condition, a patient presentation, or any piece of knowledge that I feel needs to be reviewed or deepened, I jot it down.

Address the White Space

At the end of each week, I review what I have written down on my White Space List. I determine which of the items require a simple review and which will require additional research or even additional education for me to feel more secure in my understanding.

For simple reviews, I turn to my class lectures and textbooks. For additional research, I search the APTA website for the specific topic, as well as access the APTA resources available to me, such as the Rehab Reference Center and PTNow. For additional education, I look to the APTA Learning Center,

to the Academy of Geriatric Physical Therapy (AGPT), and my other Section member websites for upcoming in-person or online workshops, and to my chapter and district for upcoming meetings and opportunities. I also reach out to the many colleagues and mentors I have found through my membership to ask for literature suggestions so that I may create my own self-study, if needed.

SELF-REFLECTION

This occurs more fluidly than my White List Space, but in general, I attempt to pause after a patient or at the end of the day to review my interactions with patients, family members, other health care providers, and my colleagues. During this time, I investigate what went well and determine opportunities for improvement. If something occurred due to my own lack or error in knowledge, this will go on my White Space List. If I am having difficulty with debriefing the situation, I will collaborate with my colleagues or seek mentorship, as discussed later.

I keep a journal to express emotional responses throughout the day, focus my thoughts, and potentially unpack complicated situations. I use this both personally and professionally, as the line between the two can often be nebulous.

Finally, I periodically complete the Self-Assessment Tools offered through the APTA website. This allows me to systematically assess how I demonstrate the core values of our profession and evaluate my clinical knowledge and skills. I completed this assessment immediately after graduation, then 6 months into my first position. Moving forward, I intend to assess yearly to ensure I am maintaining competency, and continuing to display the core values in daily practice.

COLLABORATE WITH COLLEAGUES

As a PRN physical therapist, it is sometimes difficult to create the strong bonds that flourish in a full-time setting. Because of this, it is extremely important for me to ask for help from both my physical therapist/physical therapist assistant colleagues, as well as other health care providers. I am very fortunate to have several later-career physical therapists and physical therapist assistants that are willing to debrief with me on

a patient or talk through a particularly complex case.

Additionally, I maintain a connection with my classmates, faculty, and clinical instructors from student rotations through email, text, Facebook groups, and make the effort to meet up when I am in their city or at a conference where we may cross paths. At one of the clinics I serve, I am often the only therapist on site, so keeping this connection allows me to bounce ideas around with others or reach out for clinical guidance in a complicated situation.

Another way I have found to collaborate with my professional colleagues is through the several listservs available through Section and Special Interest Group membership. I receive daily and weekly emails, as well as periodically log in to the group and peruse the conversation threads. This helps me understand challenges and solutions across the profession and lets me know I have a strong national colleague base that I can reach out to, if needed.

SEEK MENTORSHIP

I was very fortunate to have a strong mentorship framework at my academic institution. From day one, I had a peer mentor in the class above me that became both an incredible guide and friend over my 3 years. As I neared graduation, I was paired with an alumni mentor, who has become an important source of knowledge and friendship, and whose humility allows me to feel confident in sharing my truth and understanding of the profession.

I have “found” several other mentors that I can reach out to, all across the United States and the profession. A past APTA president, an invaluable connection, who has introduced me to countless people and situations, and whose decades of experience offer me perspective and has helped shape who I am today. My faculty mentor, who has since become our state chapter president and continues to point me toward incredible opportunities. My cardiopulmonary professor, who has challenged me and guided me toward academia and research. Two colleagues in the acute care setting, who consistently answer my questions with patience and grace, and remind me to “do your best and

have fun.” A colleague in the outpatient setting, who always finds time to offer clinical perspective and guide me on regulatory and administrative questions. The list continues, as this profession is full of generous and compassionate people, willing to give their time and knowledge.

Regardless of how I came into these mentorships, the most important lesson I have learned is to foster and respect them. Because of the nature of my position, I am always in flux with my schedule and setting. One constant in my professional life is my relationships with my mentors. I make sure I reach out to them periodically to connect both professionally and personally. As mentioned previously in “Collaborate with Colleagues,” I make the effort to meet up when I am in town or at a conference.

BEYOND CLINICAL COMPETENCY

Because I have the ability to make my own schedule and structure it based on my other obligations, I have taken the opportunity to become more involved in my association on a chapter, section, and national level.

I have the time to participate in advocacy events, such as National Advocacy Dinner and State Advocacy Day. This also allows me to become more knowledgeable about our profession's scope of practice, through activities such as re-reading my practice act, as well as digging deeper into regulatory issues, such as CMS guidelines.

I have been able to commit to several committee and leadership positions without feeling stressed and over-committed. This allows me to explore other avenues that our profession provides with curiosity and interest, rather than feeling burdened by additional responsibility. Through these positions, I am able to deepen my understanding of our profession and what we provide to our patients across the continuum.

Within the AGPT, I serve on a public relations subcommittee, which has taught me to be specific on how I present the profession, to frame “geriatrics” as more positive in aging-well, as well as to realize the ample amount of resources that exist for clinicians within our section and the APTA. As a director

of the NCPTA Scholarship and Loan Committee Fund, Inc, I recognize the wealth of experience incoming students bring to the profession. Applying this to patient care, I am reminded that each person comes with a story and strengths, and it is important to tap into both to help them succeed. As a planning committee member of the newly established NCPTA Early Professional Special Interest Group, I can grow my leadership skills, explore mentorship, constructively reflect upon white space in my and other early professional's knowledge, and either point to or create avenues for resources to support early clinicians. As a member of a systematic review on mobility in hospitalized patients, I can look critically at my own medical center and identify what is done well and what can be improved upon.

Through this exploration of available avenues within our profession beyond clinical practice as well as being able to serve in several settings, I can reflect upon my passions and determine the path my career may take. I am able to decide that some opportunities may

better suit me 5 or 10 years from now, some may never be the right fit, others are something that I hope to remain committed to for the remainder of my career. I am not certain I could have given each of them the necessary time if I were also trying to balance a full-time clinical position at the same time.

Working as a contract physical therapist or physical therapist assistant may not be the right fit for everyone. I have found that this has been the best step I could have taken as the first one after graduation. It has allowed me several opportunities for professional growth, as well as given me space to develop my clinical skills in various settings and with various patient populations. My experience as a PRN physical therapist has had a profound impact on my outlook

of our profession and will enrich my interactions with patients and colleagues in the future.



Anne Davenport, PT, DPT, is a recent graduate from Duke University Doctor of Physical Therapy, currently working as a PRN Physical Therapist in Western North Carolina. She is an active member in the association, serving on several committees, research projects, and advocacy initiatives at the chapter and section level. She can be reached at annedgr@hotmail.com.

Do you have a story to tell?

Meet up with the *GeriNotes* Editor at CSM and tell me about it. You can reach me at gerinoteseditor@gmail.com or look for me at the AGPT booth in the exhibit hall where I will be most unopposed times.

Academy of Geriatric PT State Advocates

Did you know that the Academy has State Advocates working locally in 48 states, advocating for older adults, promoting geriatric-related issues, courses, meetings, Geriatric SIGs and being a liaison between the Academy and state chapters?

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We are actively looking for new State Advocates in Alaska and New Hampshire, plus looking to share duties with current State Advocates in: California, Hawaii, Illinois, Missouri, North Dakota, South Dakota, and Utah. Additional positions may be opening in 2020.

**Interested?, or want more info about the program,
contact Beth Black at BBlackPT@gmail.com and Heidi Moyer, moyerheidis@gmail.com,
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GET LITerature

Sit up and Take Notice: Take Control of Sitting

Carole Lewis, PT, DPT; Linda McAllister, PT, DPT

In the last article we stated, “Sitting balance is a necessary building block of independent function and has been found to be predictive of motor recovery and function following stroke in multiple studies.”¹⁻⁴ This important fact makes assessing sitting balance crucial and treating it essential. But are there any studies that demonstrate efficacy for improving sitting balance in rehabilitation? The answer is yes. We will review a few of our favorite evidence-based interventions below.

deSize designed a postural control device worn on the head that the participant used to move the head in various positions while controlling sitting balance on a mat.⁵ The intervention was done for an hour daily compared to the control group that received usual care. The intervention group demonstrated significant improvement in trunk control. The device is very expensive but a headlamp can be used in a similar fashion. We like to have our patients shine the light on targets placed at multiple heights such as family pictures placed on high shelves, or items on the floor, necessitating head movement while maintaining upright balance.

Karthikbabu compared two groups working on trunk exercises seated either on a plinth or swiss ball and found that both groups improved but the group on the ball had slightly more improvement in function and balance.⁶ Hence, if your patients can work on the ball, use the ball; if not, you can use a plinth. Following is a list of the exercises that were done. The therapist increased the intensity of the exercises based on the patient's response by introducing the following progressions: (1) reducing the base of support, (2) increasing the lever arm, (3) advancing the balance limits, (4)

increasing the hold time. The selective exercises listed below were practiced for 45 minutes a day, 4 days a week and for 4 weeks duration. All performed in sitting: flexion and extension of the trunk (hip hinging), lateral trunk flexion, pelvic clocks, trunk rotation, forward and backward diagonal reaches.

Sharma in 2017 used a general PNF program and one that emphasized core strengthening. She found that the group that got the core emphasis improved more on trunk performance.⁷ The exercises were performed in supine and sitting for 30 minutes including 6 minutes of rest; they were performed daily, 5 days per week for 4 weeks. Here is a description of this program:

Core Strengthening Exercise: build to 30 repetitions of 8-second holds

1. Blood pressure cuff inflated to 0mm/Hg inserted above posterior superior iliac supine. Instructed to “tighten your abdominal muscles and in order to make a rigid cylinder without moving your ribs or pelvis.” Goal is to get an increase of 4-10 mm/Hg.
2. Quadruped—lift one arm at a time, then eventually lift opposite arm and leg.
3. Side bridge.
4. Partial sit ups—5 second hold.

PNF Program: done by therapist standing behind patient; Patient in sidelying on unaffected side. Therapist's hands on the anterior superior iliac spine for anterior elevation or on ischial tuberosity for posterior depression. Sequence-rhythmic oscillation for 10 minutes, slow reversal for 10 minutes and 2-minute rest in between: Command: “Pull up” for pelvic elevation.

Command: “Push down or try to sit into my hands” for pelvic posterior depression.

Improvement in trunk control was found by Park⁸ with a simple program done in supine and sitting. All exercises listed were performed for 3 sets of 15, held 5 seconds, with a one-minute rest per set. They were progressed by narrowing the base of support, increasing reach distance and hold time. Park's program: Supine: Bridge, Upper trunk rotation, Lower trunk rotation. Sitting: Anterior/posterior pelvic tilts, Lateral trunk flexion to the point of elbow touching mat, Lifting pelvis off mat toward ribs, Rotating knees and trunk alternately, and Arm reaches in all directions.

Since taking control of sitting by having good trunk control is not only predictive of recovery but allows our patients greater freedom to independently and safely complete daily activities, we need to use evidence-based interventions like the ones discussed here.

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APTA Geriatrics Announces 2019 Election Results

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