

# GERINOTES

SECTION ON GERIATRICS, AMERICAN PHYSICAL THERAPY ASSOCIATION

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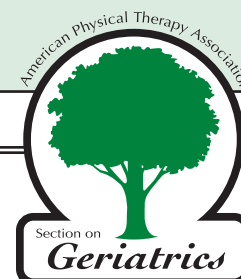
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## Manual Physical Therapy for the Geriatric Patient

**July 10-11, 2010 at Mercy Outpatient Physical Therapy Center Portland, ME**

Presented by Carleen Lindsey, PT, MScAH, GCS. This two day course is designed to give experienced therapists a practical approach to manual therapy interventions for the geriatric patient. Look for registration information in the mail and on the Geriatrics PT website!

**Contact Latasha Magness at [lataschamagness@apta.org](mailto:lataschamagness@apta.org) to register for any of these courses!**

If you are a facility interested in hosting the CEEAA series or are interested in hosting any other courses please contact Danille Parker or NovaLeigh Dodge-Krupa, co-Chairs of the Regional Course Committee at [danille.parker@marquette.edu](mailto:danille.parker@marquette.edu) (414-288-3179) or [NovaLeigh.Dodge-Krupa@genesishcc.com](mailto:NovaLeigh.Dodge-Krupa@genesishcc.com) (978-247-5112).

# PRESIDENT'S PERSPECTIVE: ARE WE SLEEPING?

John O. Barr, PT, PhD



The November 2009 issue of *GeriNotes* included the provocative article "Are We Sleeping?,"<sup>1</sup> by Certo and San Lorenzo which I hope all of you have read and taken time to reflect on. These authors caution us about and provide a range of compelling examples of other professions, disciples, and commercial interests that are infringing on an area of our expertise, that being exercise "in medical practice." They discuss the textbook, *ACSM's Exercise is Medicine™: A Clinician's Guide to Exercise Prescription*, published in 2009 by the American College of Sports Medicine (ACSM), which directs physicians on how to write prescriptions and refer their patients for exercise in a manner that bypasses physical therapists. Ironically, this book has purportedly been endorsed by a range of organizations, including the APTA, and features a PT as coauthor of a number of chapters. (Admittedly, the APTA must find itself collaborating with a wide spectrum of organizations in order to advance our Mission and Vision, so perhaps this was unavoidable.) Importantly, once again, this is not just a private practice matter; there are serious implications across the entire range of practice settings in which we work with older adults.

For those of us not inclined to spend \$50 for this ACSM textbook, a prudent alternative is to visit the *Exercise is Medicine™* Web site ([www.exercisemedicine.org](http://www.exercisemedicine.org)), the ACMS/American Medical Association collaboration that has both professional and patient components similar to APTA's *Move Forward* Web site ([www.moveforwardpt.com](http://www.moveforwardpt.com)). Among the resources available on this site is the "Healthcare Providers' Action Guide." Although very informative, as might be anticipated, the Guide also strongly promotes physicians using an exercise

prescription and referral protocol that does not include physical therapists as referral recipients. Especially troubling are Guide sections which note: "Higher risk patients with a disease who need supervised exercise should be referred to a clinical exercise professional such as an ACSM's Registered Clinical Exercise Physiologist or Clinical Exercise Specialist (who can be located via the *ProFinder* link at [www.acsm.org](http://www.acsm.org));" "Guidelines for adults over 65 (or adults 50-64) with chronic conditions such as arthritis;" and "If you are at risk of falling, perform balance exercises. If you are unsure how to perform the exercise correctly, seek the advice of an exercise professional" (again, defined not to include physical therapists). This is all too reminiscent of the American Diabetes Association's (ADA) Web site's ([www.diabetes.org](http://www.diabetes.org)) "Who's on Your Health Care Team," which notes the exercise physiologist, but not the physical therapist, as a team member.

In reality, we have NOT been sleeping...we've just not been invited to some very visible slumber parties. We all know that exercise and physical activity have been integral components of our educational preparation and clinical practice since the genesis of our profession in the U.S. during World War I, with physical therapists making valuable contributions to the body of knowledge on exercise and physical activity for almost as long. Due in part to concerns similar to those raised by Certo and San Lorenzo, in 2009 the Section on Geriatrics implemented its successful *Certified Exercise Experts for Aging Adults (CEEAA)* course series and certification process at sites around the U.S. ([www.geriatricstpt.org/experts.cfm](http://www.geriatricstpt.org/experts.cfm)). Importantly, on July 29-31, the Section presents the *Exercise and Physical Activity in Aging Conference: Blending Research & Practice* ([www.expaac.org](http://www.expaac.org)) in Indianapolis. This conference, featuring internationally-recognized experts, will disseminate current research about exercise and physical activity from mid-life through older adulthood; translate

research for its application to evidence-based practice; promote best practices in physical therapy clinical practice and education; and evaluate public policies that impact the capacity to deliver high quality physical therapy services.

It is anticipated that both of these Section initiatives will ignite member enthusiasm for reestablishing our leadership in patient assessment and interventions related to exercise and physical activity. Further, those of you who are also members of other health-related organizations such as the ACSM and ADA are encouraged to more actively advocate for the important roles of the physical therapist and physical therapist assistance in developing and applying individualized exercise programs to meet the needs of older adults.

## REFERENCE

1. Certo RA, San Lorenzo V. Are we sleeping? *GeriNotes*. 2009;16(6):21-22. Reprinted with permission from *Impact*, Private Practice Section, APTA.

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## EDITOR'S MESSAGE: OPPORTUNITY IS HERE

Carol Schunk, PT, PsyD



A feature in this issue prompted an interesting epiphany for me. I love epiphanies as they have often influenced a course in my life.

As a continuation of the Meet the Leaders feature that is included several times a year, I decided to feature the *GeriNotes* Editorial Board. In order to gather information about the Editorial Board members I asked them to provide me with responses to questions so you could get to know the group. One of the questions was initially phrased as "employment and responsibilities." When I started to get responses from the group, I realized that this was entirely the wrong way to phrase the inquiry about professional activity as several of the editorial board members are self employed so asking about "employment" was and is inappropriate. I can no longer make the assumption that people are employed but need to start to think of self employed in the form of a business or consulting or private practice as a viable clinical setting for those who specialize in the older adult. In another era of my professional career, I spent many years associated with the APTA Private Practice Section. In this group, self employed is the norm. I was very pleased when I realized that this is becoming more common for those who work with the older adult. As geriatric specialists, our expertise when coupled with the baby boomer population trends is creating a perfect storm/opportunity for us. The lead article in this issue on Autonomous Practice is a good fit. The authors focus on the point that given certain traits employment situations are not the criteria for autonomous practice. It is not about owning one's business but about owning one's practice. There is also confusion for some that direct access is a necessary factor for autonomous practice. As is pointed out in the article, autonomous practice is a characteristic of the clinician where direct access is a

benefit of the consumer. We all need to have the self recognition as autonomous practitioners and keep open to independent practice opportunities.

Two of the Editorial Board members who are self employed participated in educational sessions at the APTA Combined Section Meeting in San Diego. Ellen Strunk, who has a consulting practice on policy and Medicare issues, presented facts on current review practices including a concise summary of the health care reform bills. Patrice Antony's business is primarily advocacy but she has identified a need and now has a second business in home modification. The session on home assessments and modification was very informative, but I was most impressed with her encouragement to those in the audience to work with home builders to develop home environments that are conducive for a safe independent environment for seniors. The basic message is that there is so much knowledge and expertise that we as therapists with a specialization in Geriatrics have to offer as independent consultants. It may not be for everyone but the options are out there, in fitness or health promotion or advocacy or policy or environmental adaptation or exercise, to name only a few.

We have a new feature in this issue; "Questions and Answers." This will focus on questions submitted by members. The questions will be answered by someone with expertise in the area of practice. You have to remember that if you have a question, it is highly likely that others have the same question. We may not be able to respond to all questions but we will do our best so send them along. I am also interested in developing a pool of "experts" who might respond to the questions. Contact me.

The *GeriNotes* Editorial Board has 4 new members—Jennifer Bottomley, Lucy Jones, Ken Miller, and Pam Wenndt. Welcome, Jennifer, Ken, Lucy, and Pam. I would like to thank Neva Greenwald who has been on the Editorial Board for many years and is resigning. Thank you, Neva. The Editorial

Board met at CSM and the decision was made to continue the CE issues. The 2010 CE issue will in July with a focus on Parkinson disease as part of our continuation of the practice patterns. If any reader would like to write for this issue, please contact me. And remember—sometimes opportunity knocks, sometimes you have to ring the bell.

### SECTION AWARDS

The Section would like to congratulate the following individuals who received awards at CSM 2010. Details about the award recipients will appear in the May issue of *GeriNotes*

**Clinical Excellence in Geriatrics**  
Shelia Watts, PT, MBA, MS, GCS

**Student Award for Geriatric Research**  
Rebecca J. Hess, SPT

**Adopt A Doc**  
Michael John Bade, PT, MPT, FAAOMPT  
Che-Hsiang Elizabeth Wang, PT

**Excellence in Geriatric Research**  
Julie D. Ries, PT, PhD

**President's Award**  
Bill Staples, PT, DPT, GCS;  
Sharon Klinski, BS  
Jill Heitzman, PT, DPT, GCS, FCCWS

**Joan Mills Award for Outstanding Service**  
Marilyn Moffat, PT, DPT, PhD, FAPTA

# UNDERSTANDING AUTONOMOUS PRACTICE

*Jason Hardage, PT, DScPT, GCS, NCS; Greg Hartley, PT, MSPT, GCS; Heather Mattingly, PT, MSPT; Joseph Libera, PT, DPT, MBA, MPH, GCS; Tamara Gravano, PT, DPT, GCS; Sabrina Camilo, PT, MSPT, GCS*

## INTRODUCTION

What is autonomous practice? As one of the elements of Vision 2020, autonomous practice is one whose meaning may not always be readily understood. The confusion can stem from the meaning of autonomy, which is sometimes misinterpreted to mean that the physical therapist (PT) practices in a vacuum, without coordinating and communicating with other health care providers. Nothing could be further from the truth. In fact, many PTs might be surprised to learn that they already practice autonomously.

The operational definition of autonomous practice provided by the Task Force on Strategic Plan to Achieve Vision 2020<sup>1</sup> is as follows:

Physical therapists accept the responsibility to practice autonomously and collaboratively in all practice environments to provide best practice to the patient/client. Autonomous physical therapist practice is characterized by independent, self-determined, professional judgment and action.

Inherent in the definition is the need for the PT to use his or her professional judgment—for example, by not following orders from a physician that the PT knows to be contraindicated for a particular patient, but rather coordinating quality care for the patient by communicating with the physician.

A compelling piece on autonomous practice in the acute care setting was written by Sue Griffin, PT, MS, GCS.<sup>2</sup> In it, she describes a case scenario in which a PT recognizes signs of deteriorating neurologic status in a postoperative patient in an intensive care unit. Reporting her concern to the nurse, she is told, “Well, she is 80 years old!” When the PT states that she believes that the patient’s physician should be informed, the nurse replies, “[H]e’s not going to appreciate you calling him on a Saturday afternoon.” The PT nevertheless

places the telephone call, informing the physician of her clinical findings; the physician subsequently orders magnetic resonance imaging, which shows that the patient has suffered a stroke. Ms. Griffin gives this anecdote as an example of autonomous practice, explaining common misconceptions of autonomous practice in the acute care setting. For example, she states that some PTs believe that it is not possible to be an autonomous practitioner without direct access. However, these 2 elements of Vision 2020 are actually completely independent. In fact, autonomous practice is not synonymous with direct access; rather, it is a characteristic of the clinician, while direct access is a benefit to the consumer.<sup>3</sup>

Another insightful piece that relates to autonomous practice was written by Katherine Sullivan, PT, PhD, FAHA.<sup>4</sup> In this article, she describes the role of the PT in differential diagnosis in neurology, stating that it is important that the PT report findings that are not consistent with the working medical diagnosis to the physician. While she describes this process in terms of differential diagnosis, it also demonstrates autonomous practice as defined by the American Physical Therapy Association.<sup>1</sup> Inherent in both articles is the concept of advocacy: the PT uses independent, self-determined, professional judgment and action to advocate for the patient within the health care system.

In 2007 and 2008, a group of Neurology Section members wrestled with the question of how to define autonomous practice across various neurological settings. They produced a presentation and panel discussion<sup>5</sup> that was presented to the membership during Combined Sections Meeting 2008 and then further refined to incorporate member feedback as well as comments from the Neurology Section Board of Directors. The approved, final document<sup>3</sup> is available at [www.neuropt.org](http://www.neuropt.org). The statement presents 3 key concepts inherent in autonomous physical therapist practice in neurology: excellence, communication and

collaboration, and advocacy and caring. The statement maintains that, while features of the practice setting may impact these components (eg, face-to-face communication with physicians and other practitioners may be easier in some settings), autonomous practice is, in fact, not setting-specific. Also, autonomous practice is a professional behavior that may be demonstrated at all levels of experience, including entry level.

This statement is applicable to clinical practice in geriatric physical therapy as well. The following case studies illustrate autonomous practice in geriatrics.

## CASE STUDY 1: SKILLED NURSING FACILITY

### Case Description

Ms G, a 73-year-old female, was hospitalized 1 week ago after a sudden 10-lb weight gain and extreme shortness of breath. After she was stabilized, she was admitted to a skilled nursing facility with a diagnosis of acute congestive heart failure. Prior to admission, she lived with her husband in a single-story home, was independent in all activities of daily living, and was active in her church. She used a cane for community ambulation due to osteoarthritis pain in her knees and had been taking medication for chronic obstructive pulmonary disease for the past 6 years. Recently, she had been limiting her activities due to worsening shortness of breath that she attributed to the cold winter air and had begun using the cane indoors because she felt more confident with it.

### Examination and Evaluation

During the initial physical therapy examination, Ms G was pleasant and motivated. She was using 2 L of oxygen via a nasal cannula to maintain her oxygen saturation level at 98%. Her resting vital signs were as follows: blood pressure of 130/84 mm Hg, heart rate of 72 beats per minute, and respiratory rate of 22 breaths per minute. During the gait analysis, she required the use of a rolling walker for support and minimal



assistance to ambulate 15 ft before her oxygen saturation level dropped to 86%. Her heart rate increased to 75 beats per minute, and her respiratory rate increased to 30 breaths per minute. Her long-term goals included ambulation with a rolling walker with modified independence for 150 ft within 14 to 21 days, with an anticipated discharge disposition of home with outpatient physical therapy to help her return to her prior level of function. Ms G was taking the following medications: Lopressor (metoprolol), Lasix (furosemide), and Tylenol (acetaminophen).

### Intervention and Outcome

Ms G participated in physical therapy sessions of 45 minutes daily for 14 days and was progressing well toward her goals. She was able to transfer independently to and from the toilet and wheelchair and was highly motivated, but, for the last 5 visits, she was only able to walk 75 feet with a rolling walker with supervision due to her poor endurance. On the 15<sup>th</sup> day of treatment, Ms G was late to therapy due to the late arrival of her breakfast. The PT started the session with gait training. Before gait training, Ms G's vital signs were as follows: blood pressure of 122/80 mm Hg, heart rate of 88 beats per minute, respiratory rate of 20 breaths per minute, and oxygen saturation level of 98% on 2 L of oxygen. Ms G was able to walk 100 ft with a rolling walker with supervision only to manage the oxygen tank and verbal cues to maintain the rolling walker a safe distance from her body. She demonstrated increased shortness of breath. Her vital signs while seated in the wheelchair after gait training were as follows: blood pressure of 110/76 mm Hg, heart rate of 78 beats per minute, respiratory rate of 28 breaths per minute, and oxygen saturation level of 95%, again on 2 L of oxygen. The patient verbalized satisfaction with the treatment but reported feeling nauseous, stating that she must have eaten too fast. The PT noticed that she exhibited pallor.

The PT was concerned that Ms G may not have tolerated the gait training well and should be medically evaluated. The PT noted that even though the vital signs were generally within normal limits, they were not normal for this patient and had not responded as expected to the physical activity of ambulation. The respiratory rate increased as expected, while

the oxygen saturation level declined only 3% and remained in a safe range; however, the heart rate decreased by 10 beats per minute, and the systolic blood pressure decreased by more than 10 mm Hg, necessitating exercise discontinuation.<sup>6,7</sup> The physiologic responses demonstrated by the vital signs are clinical features of cardiovascular pump failure and could have been signs that the heart was unable to keep up with the physical demands that were placed on it. Also, congestive heart failure places individuals at risk for myocardial infarction. Though Ms G did not present with the classic symptom of an acute myocardial infarction of radiating chest pain, she may have been having a silent myocardial infarction. One of the symptoms of myocardial infarction in women is gastrointestinal upset. Also, she did exhibit increased shortness of breath and pallor. The combination of these findings indicates the presence of a possible medical emergency.

The PT knew it was vital to immediately report the signs and symptoms to the attending nurse or physician. The PT called the physician, who ordered an immediate electrocardiogram, which confirmed the occurrence of an acute myocardial infarction. Ms G was transferred by ambulance to the local hospital emergency department, where she was then admitted for an emergency coronary artery bypass graft. She remained hospitalized in the cardiac intensive care unit for 10 days and, when stabilized, was transferred to the inpatient rehabilitation setting for continued therapy.

### Discussion

Physical therapists must know the expected response to physical activity including exercise and not rely solely on normative values when assessing tolerance; rather, they should attend to changes in values for heart rate, blood pressure, and other measures and correlate those changes with physical signs and symptoms (eg, nausea, diaphoresis, pallor). It is also important to recognize that patients with myocardial infarction—particularly women—may exhibit an atypical presentation that could be missed because of the subtlety of the signs and symptoms. Finally, it is vital to communicate with other disciplines regarding patients' medical and functional statuses. In this case, if the PT had attributed the nausea to medication side

effects or a late breakfast and continued the therapy session, hoping for the nausea to resolve, then the outcome may have been fatal. Autonomous practice derives from the responsibility of the PT to assess, treat, and, when appropriate, terminate treatment and refer as needed for immediate medical attention.

## CASE STUDY 2: LONG-TERM CARE SETTING

### Case Description

Ms R, an 82-year-old female, had resided in a nursing home for 4 years. Her past medical history included mild dementia, osteoarthritis in both knees, cataract surgeries, hypertension, Type 2 diabetes, and stroke. She had recently been able to ambulate with a rolling walker and supervision for about 200 ft with restorative nurses and participate in most recreational activities in the nursing home. Then, Ms R experienced a fall while attempting to go to the toilet without assistance, sustaining no apparent injury; however, she subsequently refused to walk with the restorative nurses, and her participation in other activities declined as well. She was referred for a physical therapist examination.

### Examination and Evaluation

Upon initial examination, Ms R was able to perform rolling in bed independently. She needed minimal assistance to transition from supine to sitting, and she required moderate assistance to stand with a rolling walker and was very retropulsive. She agreed to walk and took 5 steps, keeping her center of gravity quite posterior and demonstrating a narrow base of support. Ms R denied pain at rest but complained of pain upon weight bearing in the right knee. Palpation revealed tenderness at the lateral joint line near the femoral condyle. The anterior drawer test was negative, but the varus test was positive for reproduction of pain. Her active range of motion was normal globally except for limited extension in both knees, and her gross strength was greater than 3+/5 globally. She scored 46% on the Activities-specific Balance Confidence scale (range, 0-100%; higher scores indicate greater confidence),<sup>8</sup> indicating a low level of physical functioning.<sup>9</sup> Her medications included Lasix (furosemide), Glucophage (metformin), and Tylenol (acetaminophen).

## Intervention and Outcome

The PT contacted the physician to discuss the findings concerning the right knee. The physician ordered magnetic resonance imaging, which revealed a minor tear of the lateral collateral ligament. The PT established a plan of care specifying a visit frequency of 3 times per week for 2 weeks and then 2 times per week for 2 weeks to focus on pain control, strength, balance, and functional mobility. The initial treatment sessions focused on pain control for the right knee. A brace was ordered to provide Ms R with support in standing. The PT continued with sit-to-stand transfer training, standing exercises in the parallel bars for balance, and gait training with the rolling walker. By the second week, Ms R began to exhibit improved quality of gait and ability to stand upright with only supervision; therefore, the visit frequency was decreased to 2 times per week as planned. At this point, the PT established a range-of-motion program as well as a restorative walking program for 3 days per week, alternating with the days that she had physical therapy sessions. The PT was present to train the restorative nurses during the first 2 sessions of restorative care. At the end of 4 weeks, Ms R was discharged from physical therapy with a score of 66% on the Activities-specific Balance Confidence scale,<sup>8</sup> indicating a moderate level of physical functioning<sup>9</sup> and continued with the restorative nursing program.

## Discussion

Ms R's decline in function was attributed to a recent fall resulting in pain at the right knee. Her knee was likely injured during the fall, damaging the lateral collateral ligament. While many long-term care facilities have standing orders for or request plain films after a fall, in this case, a plain film would not have revealed the injury. Ms R's functional status began to improve once she developed a relationship of trust with the PT and, more importantly, regained her confidence. In the long-term care setting, the PT has great autonomy to determine if a patient is appropriate for skilled services, determine and change the frequency of services, monitor restorative programs, and request additional tests, if indicated. Physical therapists must develop good communication with other team members since the PT is often the first one

to identify signs and symptoms of injury or illness.

## CASE STUDY 3: HOME HEALTH SETTING

### Case Description

Mr L, a 78-year-old male who lived with his spouse of 55 years, had fallen twice in his home in the past month and reported dizziness. Following a routine visit to his physician, Mr L was referred for home health physical therapy. His past medical history included hypertension, coronary artery disease, mild chronic obstructive pulmonary disease, and constipation. He stated that a physician told him that he had experienced several small strokes. Mr L's spouse expressed concern that he might "fall and hurt himself" and did not need to be driving because of his dizziness.

### Examination and Evaluation

Mr. L was oriented and cooperative throughout the evaluation. He understood all questions and was a good historian. The physical therapy examination and evaluation also revealed mild right-sided weakness and a resting tremor of the right upper extremity. Cranial nerve testing was negative except for oculomotor testing, which yielded positive smooth pursuits (suggesting central vestibular pathology) and a positive right-sided vestibulo-ocular reflex (suggesting peripheral or central vestibular pathology). In combination, these findings are more suggestive of central vestibular pathology.

Mr L performed his activities of daily living independently, household ambulation with occasional furniture walking with modified independence, and outdoor ambulation over various surfaces with supervision. His scores on both the Berg Balance Scale<sup>10</sup> (42 points) and the Dynamic Gait Index<sup>11</sup> (18 points) indicated an increased risk of falls. Likewise, Mr L's usual gait speed on even surfaces was .88 m/second; usual gait speed of less than 1 m/second is a predictor of future falls.<sup>12</sup> His medications included Norvasc (amlodipine), Toprol (metoprolol), Antivert (meclizine), and Tylenol (acetaminophen). His blood pressure was 104/84 mm Hg in supine, 96/78 mm Hg in sitting, and 84/74 mm Hg after standing for 2 minutes, indicating orthostatic hypotension.<sup>13</sup> Finally, the PT administered the short-form Geriatric Depression Scale,<sup>14</sup>

on which Mr. L scored 7 points, indicating possible depression.

Based on the examination results, supported by the patient's report of dizziness and imbalance rather than vertigo, the overall clinical picture is consistent with central vestibular pathology, possibly attributable to his history of strokes. Other findings include mild residual right-sided weakness, also possibly attributable to the patient's history of strokes; a resting tremor suggestive of an undiagnosed neurologic disorder; impairments in gait and balance; orthostatic hypotension; and possible depression.

### Intervention and Outcome

The PT contacted the referring physician to report her findings and recommend further medical workup for possible depression; a home health nursing consult for medication management, including regulation of blood pressure medications; and a neurology consult for evaluation of central vestibular signs, right-sided weakness, and resting tremor. The PT then developed the plan of care, which included goals of a normal falls risk as measured by the Berg Balance Scale<sup>10</sup> and Dynamic Gait Index;<sup>11</sup> independence or modified independence in ambulating for 1000 ft (with or without an assistive device) to facilitate community ambulation; and independence with home exercises and home safety training by recall and return demonstration. The treatment plan included therapeutic exercises, gait training, postural control exercises, gaze stabilization and habituation exercises, and patient education.

The referring internist confirmed a medical diagnosis of depression and initiated pharmacologic therapy, and the neurologist confirmed the past medical history of remote strokes and made a new medical diagnosis of Parkinson disease, for which pharmacologic therapy was not needed at this time. The home health nurse determined that Mr. L had been taking his home medications correctly and, in consultation with the internist, helped him adjust the dosages of his antihypertensive medications such that he was no longer orthostatic. The PT determined that Mr L's Hoehn and Yahr classification of disability was Stage I because his current involvement with respect to the Parkinson disease was minimal and unilateral.<sup>15</sup> Therapeutic exercises, including strengthening and

conditioning exercises, along with vestibular rehabilitation resulted in greater postural control and balance and endurance during ambulation. After 7 weeks of treatment, Mr L reported significant improvement of his symptom of dizziness and improved his Berg Balance Scale<sup>10</sup> and Dynamic Gait Index<sup>11</sup> scores to 49 and 20, respectively, indicating a decreased risk of falls. He also met his goals for independence with ambulation and the discharge home exercise program.

### Discussion

Mr L's overall clinical picture of a recent decline in functional status was attributable to multiple factors that were subsequently addressed through a multidisciplinary collaboration. The PT's role was to facilitate collaborative practice by identifying issues necessitating referrals to various other providers and ensure effective communication and coordination for optimal outcomes.

### SUMMARY

The case studies illustrate the 2 key concepts inherent in the definition of autonomous practice: collaborative practice and independent, self-determined, professional judgment and action.<sup>1</sup> They also illustrate the need for excellence in clinical skills, regardless of practice setting, challenging us to develop a plan for lifelong learning and professional development. Clearly, autonomous practice is also highly interrelated with other components of Vision 2020,<sup>1</sup> including evidence-based practice, practitioner of choice, and professionalism. As Vision 2020 increasingly becomes a reality, let's embrace the component of autonomous practice and recognize that it is what we are already striving for!

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# FALLS IN OLDER PEOPLE

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## INTRODUCTION

As the aging population increases, falls and fall prevention have received much attention. Falls, both injurious and noninjurious, cause potentially adverse physical, social, and financial consequences. Fall incidents are common in older people with higher occurrences in individuals aged 65 and above. There has been an increase in fall research and local and national management guidelines, reflecting multidisciplinary professional and public awareness of falls. Falls are complex with many contributing risk factors, such as muscle weakness, impaired postural stability, visual impairment, certain medical conditions, and home/environmental hazards. Numerous assessment tools and interventions have been established to prevent fall incidents.

## DEFINITION

A fall is defined as “inadvertently coming to rest on the ground or other lower level with or without loss of consciousness or injury.”<sup>1</sup> A fall is not a diagnosis in itself, but it is a result of complex interaction of multiple intrinsic and extrinsic risk factors.

## EPIDEMIOLOGY AND FALL CONSEQUENCES

Falls are one of the leading causes of death and injury among older people. Falls occur in more than one third of adults aged 65 and older annually.<sup>2</sup> Thirty to fifty percent (30% - 50%) of people aged over 65 fall at least once a year.<sup>1</sup> In 2005, 15,800 people 65 and older died from fall-related injuries. Approximately 1.8 million people 65 and older were treated in emergency departments for nonfatal injuries from falls; of those, 433,000 were hospitalized. The risk of being seriously injured in a fall increases with age. Specifically, individuals aged 85 and above are four to five times more likely to fall than those aged 65 to 74.<sup>2</sup> Consequences of falls include bruises, hip fractures, head trauma, and death. Significant psychosocial implications of falls, such as loss of confidence, avoidance of activities, and increased social isolation cause reduced mobility and physical fitness, and increase individuals' actual risk of falling.<sup>1</sup> Men are more likely to die from falls. In 2004, the fall fatality rate was 49% higher for men than for women after adjusting for age. However, women are 67% more likely than men to have a nonfatal fall in-

jury.<sup>2</sup> Ninety-five percent (95%) of hip fractures in older women are caused by falls.<sup>1</sup> Individuals aged 75 and above who fall are four to five times more likely to be admitted to a rehabilitation facility for a year and longer.<sup>2</sup> Costs associated with falls are enormous. In 2000, direct medical costs for fatal falls and nonfatal fall injuries were \$179 million and \$19 billion, respectively.<sup>2</sup>

## RISK FACTORS

A fall could be a consequence of interaction among a variety of risk factors. In excess of 400 potential falls associated with risk factors have been reported. For example, osteoarthritis, as an independent risk factor, could lead to a fall as a result of its contribution to muscle weakness and gait abnormalities. Risk factors can be broadly classified into 2 categories--namely, intrinsic such as muscle weakness, postural control, and certain medical conditions; and extrinsic, environmental hazards.<sup>1</sup>

### Intrinsic Factors

#### Neural control of balance

Postural control is a complex motor skill with 2 main functional goals;

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(Coauthors of Understanding Autonomous Practice article continued from page 8)



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namely, postural orientation and postural equilibrium. Postural orientation involves active alignment of the body as it relates to changes in gravity, support surfaces, visual cues, and internal resources. Sensory information from somatosensory, vestibular, and visual systems are integrated and weighed depending on the goals of the movement task and the environmental context. Postural equilibrium involves the coordination of movement strategies (eg, ankle, hip, and stepping strategy) to stabilize the center of body mass during self-initiated or externally triggered disturbances of stability. Important resources required for postural stability and orientation include biomechanical constraints, movement strategies, sensory strategies, orientation in space, control of dynamics, and cognitive processing. The most important biomechanical constraints on balance are the size and quality of the base of support and controlling the body center of mass (CoM) related to its base of support with the central nervous system (CNS) having an internal representation of the stability limits of the body. Individuals with basal ganglia disorders like Parkinson disease have postural instability due to abnormal representation of stability limits in CNS. Movement strategies, ankle, hip, and stepping are used to maintain postural stability. Older individuals with high risk of falls tend to use stepping, reaching, and hip strategies. Selected strategies depend on intention, experience, and expectation. Integration of the somatosensory, visual, and vestibular systems are important to interpret complex sensory environment. The sensory information is weighed depending on environmental contexts. Individuals with a loss of at least one sensory system, eg, neuropathy (somatosensory loss) are limited in their re-weight postural sensory resulting in higher risk of falls. Body orientation in space related to gravity, the support surface, visual surround, and internal references is controlled by the nervous system. Individuals with inaccurate internal representation of verticality will have postural instability due to problems with body alignment with gravity. Complex control of body CoM movement is important for dynamic balance. Older people with fall risks tend to demonstrate larger-than-normal lateral excursion of the body CoM and more irregular lateral foot placements. Cogni-

tive processing is another requirement for postural control. Postural control and cognitive processing share the same cognitive resources. Individuals with cognitive impairment are at risk of falling as a consequence of their using a limited cognitive resource to control posture. Older people who have balance disorders are found to have multiple fall risk related impairments, such as multisensory loss, weakness, orthopaedic constraints, and cognitive impairments. It is important, however, that these impairments do not directly cause functional loss. For example, some people with a particular impairment have much better function than others depending upon the type of impairment and the strategies used to compensate for the impairment. Thus, impairments to different systems result in different, context-specific instabilities. It is recommended that a comprehensive evaluation by a clinician skilled at systematically evaluating impairments and strategies underlying functional performance in postural stability is necessary for optimal balance rehabilitation and fall prevention.<sup>3</sup>

#### **Foot and ankle characteristics**

A study by Menz et al showed that foot and ankle characteristics significantly contribute to balance and functional ability in older people.<sup>4</sup> Plantar tactile sensitivity, ankle flexibility, the presence of lesser toe deformity, and the sensitivity of hallux valgus for foot and ankle characteristics demonstrated the most consistent associations with balance and functional test scores. There is an association between plantar sensation and standing balance; for example, increase in postural sway was found in individuals with peripheral neuropathy. Toe muscle function is very important to maintain balance in older people, eg, older people demonstrate greater pressure with their toes than do younger ones when standing while attempting to intensify sensory information to maintain balance. From the sensorimotor aspect, strength and reaction time exhibited the strongest correlations with balance and functional performance. Interventions that may improve balance in older people include augmentation of tactile sensory information from the sole of the foot, increase ankle ROM (range of motion), and increase strength of toe plantarflexor muscles.

#### **Biomechanics of slips and falls**

A study of the aging effects on the process of slips and falls using biomechanical parameters showed that there were no significant differences in the slip initiation process regardless of the influencing factors such as step length, walking velocity, and heel contact velocity, among different age groups.<sup>5</sup> On the other hand, during the slip and fall detection and recovery stage, older adults were more likely to fall as a result of a delayed fall response selection processes. Older adults exhibited longer motor control times and slower and less effective recovery process. The study suggested that recovery from a slip is associated with lower extremity muscle strength and sensory integrity.

#### **Muscle weakness**

As an independent risk factor, muscle weakness is closely linked with gait and balance abnormalities in older people. In one systematic review and meta-analysis of muscle weakness and falls in older adults, the researchers concluded that muscle strength (especially that of lower extremity) is an important risk factor for falls and should be assessed and treated in older adults.<sup>6</sup>

#### **Visual impairment**

Vision is important for stabilizing balance. Visual feedback provides the nervous system with continually updated information regarding the position and movements of body segments in relation to each other and the environment. Postural sway increases by 20% to 70% when people stand with their eyes closed. Accurate perception of visual stimuli and depth is important to provide a visual reference frame for body stabilization relative to its surroundings. Based on a review study by Lord,<sup>7</sup> visual acuity might not be associated with increasing risk for falls. However, older people with a loss of edge-contrast sensitivity are predisposed to trip over obstacles within the home and outdoor hazards, eg, steps, curbs, and pavement cracks and misalignments. Reduced depth perception also is found to be strongly associated with falls. The author suggested that ability to negotiate and avoid obstacles and hazards in the environment depended on the ability to judge distances accurately and perceive spatial relationships. Another factor adding to the risk of falls is wearing multifo-

cal glasses. With multifocal glasses, older people view the environment through their lower lenses that impairs the important visual capabilities (contrast sensitivity and depth perception) for detecting environmental hazards, particularly in unfamiliar environments. Simple interventions recommended included regular eye examinations, use of correct prescription glasses, cataract surgery, the removal of tripping hazards in the home, and use of single-lens distance glasses in higher-risk situations (eg, negotiating stairs, walking outside the home).

### Neurological diseases

Fall prevalence is high among individuals with neurological problems. One study investigated the prevalence, risk factors, and etiology of falls in neurological inpatients.<sup>8</sup> The result showed that one-third of inpatients in the neurological department fell twice as often as those in an age-matched population living in the community. Fifty-five percent (55%) of the falls was directly related to a gait disturbance in neurological inpatients. Postural disturbance and sensory impairment (a typical symptom of polyneuropathy) was another factor found that strongly correlated with falls. These impairments are typical in neurological patients. Disease-related risk factors for falls included Parkinson disease (PD), syncope, polyneuropathy, spinal disorders, motor neuron disease, and multiple sclerosis. Impairments in the sensory motor system are commonly found in patients with these neurological diseases. The number of falls and injuries were found very high among individuals with PD. Freezing episodes, difficulties with turns, and problems to get up from a chair were identified as indicators of high fall risk in PD patients.

### Syncope and neurocardiovascular factors

Syncopal episodes have been found to be related to falls, particularly in patients where there is no clear explanation for fall circumstances such as poor recall of falls, lack of witness account, and the demonstration of amnesia for loss of consciousness.<sup>1</sup> Syncope, the mechanism by which cardiovascular abnormalities is a symptom, defined as a transient, self-limited loss of consciousness, usually leads to falls. Syncope is common among older people (aged 70 and up) with in-

creased fall incidences. Factors including age-associated physiological changes in heart rate, blood pressure, cerebral blood flow, baroreflex sensitivity, and intravascular volume regulation, combined with comorbid conditions and concurrent medications, contribute to a higher incidence of syncope in the older population. Frequent causes of syncopal falls in older people include orthostatic hypotension, carotid sinus syndrome, neutrally mediated syncope, and cardiac arrhythmias. Orthostatic hypotension occurs between 6% (in community-dwelling older people) to 33% (in hospital inpatients). It is responsible for up to 36% of syncope in older individuals.<sup>9</sup> Orthostatic hypotension is defined as "a fall in systolic blood pressure by at least 20 or more or a drop in diastolic blood pressure by at least 10 mmHg on standing."<sup>1</sup> In the absence of

*"The recommended public health strategy for preventing falls in elderly persons was to target prevention and control of chronic disease rather than polypharmacy."*

identifiable precipitating factors, it occurs when the autonomic nervous system fails to respond adequately to the upright position by vasoconstrictor mechanisms, resulting in a reduction in blood pressure of sufficient magnitude to give rise to the symptoms. Identifiable causes of orthostatic hypotension include culprit medications, primary autonomic failure, secondary autonomic failure (diabetes), PD, or multisystem atrophy. Cardioinhibitory carotid sinus syndrome is identified as a potential cause of unexplained falls and is accounted for up to 20% of syncope in elderly people. Carotid sinus syndrome rarely occurs before age 40. The syndrome is diagnosed in patients who are found to have an abnormal response to carotid sinus massage (carotid sinus hypersensitivity) and an otherwise negative investigational workup for syncope. One study related to intervention in the form of a dual-chamber pacemaker for subjects with unexplained or recurrent falls who had cardioinhibitory carotid sinus syndrome, was found to associate with a significant reduction in the rate of falls as well as of syncope.<sup>1</sup>

### Neutrally mediated syncope

Neutrally mediated syncope accounts for up to 15% of syncope individuals. In older individuals, nonclassical vasovagal syncope (episode without clear triggering events or premonitory signs) is more common, making these individuals more susceptible to falls. The cause is also found to be related to prescription of cardiovascular medications. Situation syncope with micturition and gastrointestinal stimulation (swallowing, defecation, and visceral pain) is very common among older people.

### Cardiac arrhythmias

Up to 20% of syncope in older individuals is due to cardiac arrhythmias. Both bradyarrhythmias and tachyarrhythmias potentially trigger falls through reduction in cardiac output leading to hypotension and collapse.<sup>9</sup>

### Other chronic diseases

Based on a study by Lawlor et al,<sup>10</sup> circulatory disease, chronic obstructive pulmonary disease, depression, and arthritis are associated with higher odds of falling, even with adjustment for drug use and other potential confounding factors. The authors also investigated participants' drug use and concluded that the risk of falls was higher for chronic diseases and multiple pathology (32%) than for polypharmacy (2%-5%). The recommended public health strategy for preventing falls in elderly persons was to target prevention and control of chronic disease rather than polypharmacy.

### Extrinsic Factors

#### Physical environment

Environmental hazards contribute to half of all falls in older people.<sup>1</sup> Based on previous studies, 50% to 70% of falls happen in or around the home and 40% to 60% of falls are due to environmental hazards. Poor lighting, floor surfaces, stairs, objects on pathway, poorly designed furniture, placement of furniture, and toilet design are most common hazards found in older adults' homes. In one study, dim lighting (31.8%), slippery floor or floor with obstacles (18.2%), out of reach storage area (14.6%), carpeting or rug without nonskid backing (14.6%), and loose or nonexistent grab bars or handrails (13.0%) were major potential home environmental hazards. Based on another study, 80% (n = 342)



of homes in community-dwelling individuals over 70 years of age had at least one hazard, and 39% (n= 164) had more than 5 hazards. The bathroom was identified as the most hazardous room, with 66% (n= 279) of bathrooms having at least one hazard. Another potential hazard found was mismatches between the home environment and physical capabilities. For example, low-lying chairs were more prevalent in homes of people having difficulty in transferring; whereas obstructed pathways were more prevalent in homes of people having gait problems. The studies on the effect of environmental hazards on frail versus vigorous older adults have shown that environmental hazards were more likely to be associated with falls in vigorous rather than frail individuals. A frail older person generally fell at home and during routine nondisplacement daily activities, such as standing or turning. On the other hand, vigorous individuals tended to fall while away from home, on stairs, in the presence of environmental hazards, or during displacement activities such as walking or climbing. One study comparing falls and the presence of home hazards in vigorous and frail older people concluded that both variables were not strongly associated. A study examining interaction between behavioral and environmental factors on falls concluded that participants without preceding falls had a 4-fold risk of falls in the presence of 6 or 7 home hazards compared with those people without home hazards. In addition, there was no increased risk of falls with increasing numbers of home hazards in participants with preceding falls. The authors explained that the difference could be a result of behavioral differences between recurrent fallers (more cautious) and nonfallers (less cautious). Another study found that 63% of the falls were due to risk-taking behaviors, such as not being careful or alert, not looking where one was going, and being in a hurry. Based on a study by Feldman and Chaudhury,<sup>11</sup> falls were reduced by 60% after implementing home modification intervention only. The interventions included a free home safety inspection and simple home modification such as grab rails and nonslip floor surfaces. One study on adherence to home-modification interventions found that the intervention resulted in a small reduction in the mean number of hazards per house.

One reason was that older individuals are usually emotionally attached to their environments, and most do not acknowledge the need for interventions to prevent falls. Another study found that of the 419 home modifications that had been recommended in the 121 homes, only 216 (52%) were met with partial or complete adherence when revisited after 12 months. In addition, the only significant predictors of adherence were a belief that home modifications can prevent falls and having help from relatives at home.

### Polypharmacy

Numerous studies supported that the use of 4 or more regular medications has been associated with an increased risk of falls.<sup>1</sup> Psychotropic drugs associated with falls includes benzodiazepines, antidepressants, neuroleptics, and anti-convulsants. Older people are especially vulnerable to the neurological side effects of these medications because of the changes in their pharmacokinetics and pharmacodynamics related to aging. Landi et al<sup>12</sup> investigated current use of different classes of psychotropic medications (including antipsychotic agents, benzodiazepines, nonbenzodiazepine sedative-hypnotics, and antidepressants) and the risks of falls. The result showed that users of psychotropic drugs had an increased risk of fall of nearly 47% after adjusting for all potential confounders. Users of atypical antipsychotic drugs also had an increased risk of falling at least once compared with nonusers. The risk of falls increased among benzodiazepine users regardless of the use of long elimination half-life or short elimination half-life. Compared to nonusers, patients taking antidepressants did not show a higher risk of falling. The authors concluded that minimizing the use of CNS active medications may decrease the risk for falling. Medication modification has been effective in fall reduction and also cost effective. A study by van der Velde N et al<sup>13</sup> on geriatric outpatients showed that after adjustment for confounders, drug withdrawal resulted in a falls risk reduction of 0.89 (with a 95% confidence interval of 0.33 to 0.98) per patient compared with the nonwithdrawal group. Net cost savings were €1691 per patient in the cohort or €491 per prevented fall.

There are multiple risk factors in many individuals with a history of falls.

The risk of falling is increased by synergism of risk factors. An older person without identifiable factors has an 8% risk of falling compared to 78% in those with 4 or more risk factors.<sup>1</sup>

### RISK ASSESSMENT TOOLS

Fall-risk factors are multiple. There are several methods and tools devised to assess balance and risk of falls. The American and British Geriatrics Societies recommended the Timed Up and Go Test (TUGT) as a screening tool for identifying older people at increased risk of falls. The TUGT, an indicator of 'basic mobility,' measures the time required for a person to rise from a chair, walk 3 m, return to the chair, and sit down. The tool was found to be significantly correlated with slow gait speed, low Berg balance, and Barthel Index scores. Some studies investigate the relationship between TUGT performance and falls in community-dwelling people. For example, a study by Shumway-Cook et al found that a TUGT cut-point of 14 seconds significantly discriminated between the faller and nonfaller groups. In this study, 13/15 subjects from both groups were correctly classified using this criterion, providing sensitivity and specificity for identifying fall outcome of 87%. In another example using 157 subjects, the TUGT had very high sensitivity with 98% of the 109 fallers being correctly classified, but considerably lower sensitivity, with only 15% of the 48 nonfallers being correctly classified. The TUGT, although simple and easy to administer, cannot provide detailed information regarding the impairments in physiological domains that contribute to falls risk and therefore provides little in the way of information about how to target intervention strategies. The Physiological Profile Assessment (PPA) provides objective data on the relative contribution of vision, proprioception, muscle strength, reaction time and postural stability to fall risk, and is useful in identifying likely interventions to reduce falls risk. The PPA is a good predictor of those at risk of future recurrent falls; however, it requires specific equipment. Another comprehensive clinical assessment of falls risk to identify remediable causes of gait and balance problems is the performance-orientated assessment of mobility devised by Tinetti. This tool assesses gait and balance refined and applied to



different study populations. It contains a 9-point gait score and a 13-point balance score for community-living older people.<sup>14</sup> Besides the assessment tools mentioned, one study on the optimal sequence and selection of screening test items to predict fall risk recommended collecting data and assessment regarding the number of falls in the last year, frequency of difficulty balancing while walking, a 4 m walking speed test, body mass index, and a test of knee extensor strength in identifying risk of falls in older people.<sup>15</sup>

## FALL PREVENTION INTERVENTIONS

Any successful interventions in reducing fall rates, fall-related injury, or the psychosocial restrictions linked with a fear of falling could improve quality of life for older people and reduce the expenses related to fall and fall injury. Numerous studies have investigated the efficacy of fall intervention and prevention. Fall risks are multifactorial; thus study outcomes need to be interpreted with caution, especially if only one outcome measure is reported. In general, interventions can be separated into single and multifactorial.

### Exercise

Exercise interventions have been mostly widely studied of all the single interventions assessed in falls prevention. A study by Campbell and colleagues was to investigate the efficacy of a home-based exercise program in women aged 80 and older. The subjects were monitored on falls, injuries, and compliance with the exercise program over 2 years. This study concluded that an individualized home strengthening and balance retraining exercise program was effective in fall reduction. For those who keep exercising, the benefit continues over a 2-year period. Individuals who were more likely to continue exercising were more physically active, had experienced a previous fall, and remained confident about not falling. The authors recommended a minimum of ongoing contact with the therapists with a 6 monthly follow-up home visits for program modification, to encourage compliance and enthusiasm for the benefits of the program.<sup>16</sup>

This finding also was supported by another study by Campbell et al. This study was to investigate the effectiveness

of an individual home-based program of strength and balance retraining exercises in improved physical function and in reducing falls and injuries in women 80 years and older. The authors found that after 6 months, balance and performance of the subjects in the exercise group in the chair stand test had improved compared with the control group. After one year follow up, there were 152 falls in the control group and 88 falls in the exercise group.<sup>17</sup>

Another type of exercise “Tai Chi,” becoming a popular choice of exercise, has been receiving increasing research attention, mainly because Tai Chi is supposed to be beneficial for improving flexibility and balance through its unique capacity to enhance lower extremity strength and improve postural stability. Based on the results of many studies, Tai Chi has been shown to reduce the risk for falls and fear of falling. For example, a study by Li et al on Tai Chi and fall reductions in older adults concluded that a 3 times per week, 6-month Tai Chi program was effective in decreasing the number of falls, the risk for falling, and the fear of falling. The program helped improve functional balance and physical performance in physically inactive persons aged 70 years or older.<sup>18</sup> In summary, exercise as a single intervention has been supported by many studies to be effective in reducing fall rate, particularly the program that is individualized and prolonged in duration.

### Fall Prevention Programs

In addition to single intervention, multicomponent fall prevention programs and community program guidelines are proved to be effective and supported by many studies. This seems logical since most falls result from multiple risk factors. An article by Tinetti on preventing falls in elderly persons recommended that all patients aged 75 years or older (or 70 years or older, if they are known to be at risk for falling) should be asked about their fall history, questioned about the circumstances of the falls, and examined the potential risk factors. Since the majority of falls result from interactions between long-term or short-term predisposing factors and short-term precipitating factors in a person's environment, multifactorial assessment, and intervention is effectively reducing the fall rate. However multifactorial assessments that are not linked to

targeted interventions have been ineffective in preventing falls. Single-intervention strategies also can be proved effective among elderly persons if there is the presence of a known risk factor or a history of falls. These interventions include professionally supervised balance and gait training and muscle-strengthening exercises, gradual discontinuation of psychotropic medications, and modification of hazards in the home.<sup>19</sup>

In addition to a fall prevention individual program, a community program can be effective to a high proportion of the elderly population at risk. In general, an individual program requires comprehensive patient assessment and diagnosis. A multidisciplinary team provides individual treatment based on the assessment. In order to reach more people at risk, community or public health programs are less expensive individually and staff intensive. The programs are commonly based on a simple assessment, delivered by a single health professional. One study was to investigate the efficacy of multiple components compared to single strategies in community-based fall prevention. The result showed that the delivery of single factor intervention to a selected population was as effective in reducing falls as delivering multifactorial interventions to at risk community populations. Effective fall prevention interventions decreased the number of falls by almost a third regardless of single or multiple components. Successful single interventions were the ones that addressed the risk factor that accounted for a large proportion of the falls risk. Multifactorial interventions were not successful if they caused confusion, or lead to more change than the older person was willing to accept. Based on the result, the authors recommended that targeted single interventions are the most acceptable, cost effective, and easily instituted method of achieving fall reduction in the community.<sup>20</sup>

## SUMMARY

Falls and fall-related injuries are common problems in older people aged 65 years and older, with significant potential physical and psychosocial consequences. Falls mostly result from interactions among multiple risk factors broadly categorized into intrinsic and extrinsic factors. Intrinsic factors include muscle weakness, impaired neural control of balance, visual impairment,

and certain health conditions/diseases. Extrinsic factors include environmental hazards and polypharmacy. Several tools have been found to be effective to assess fall risk such as the Tinetti, Timed-Up-and-Go Test, and the Physiological Profile Assessments. Intervention for fall prevention can be single or multifactorial. Effective interventions are ones that target and address the minimization or eliminate risk factors. Strengthening and balance retraining exercises such as Tai Chi have proven to be effective in fall reduction. Individualized comprehensive assessment for risk factors and correspondent intervention is very important in preventing falls in older people.

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advisor in numerous care settings and legislative state and federal advisory boards/panels and teaches at many Universities and CE settings including the University of Indianapolis (where Alexis is pursuing her DPT). Jennifer is a past president of the SOG and currently serves on the Editorial Board of *Geriatrics Notes*.

*The chief danger in life is that you may take too many precautions.*

*Alfred Alder*

# VALUE BASED PURCHASING FOR NURSING HOMES

Ellen R. Strunk, PT, GCS

Do you currently work in a nursing home full-time or per diem? Do you have a loved one and/or family member who currently resides in a nursing home? Do you have a loved one and/or family member who may have reason to spend time in a nursing home in the near future? If so, then you may want to take time to read this article and learn more about the current Quality Measure system and future Value-Based Purchasing (VBP) Demonstration project for nursing homes.

How many people know that quality measures for every Medicare certified nursing home in the nation are currently reported on the web? You can go to [www.medicare.gov/NHcompare](http://www.medicare.gov/NHcompare) to see for yourself how the place that you work or the place where your loved one is currently residing compares to other nursing homes in the city, state, or nation.

In November 2002, the Centers for Medicare & Medicaid Services (CMS) began a national Nursing Home Quality Initiative (NHQI). Pieces of that Initiative include:

- Quality measures monitored & reported by nursing homes through MDS collection
- Nursing Home Compare, a Web site where consumers and the public can access information about specific nursing homes' quality measures
- The Nursing Home Value-Based Purchasing Demonstration

## BACKGROUND

The Nursing Home Value-Based Purchasing (NHVBP) Demonstration is the latest piece to be added to the CMS "pay-for-performance (P4P)" initiative. Its aim is to improve the quality of care furnished to all Medicare beneficiaries in nursing homes. Under this demonstration, CMS will either pay more to nursing homes that demonstrate delivery of high quality care or improvement in care OR....pay less to nursing homes who don't demonstrate delivery of high qual-

ity care or improvement in care. This is usually referred to as a "financial incentive" for better care. Centers for Medicare & Medicaid Services anticipate that certain avoidable hospitalizations can and will be reduced as a result of improvements in quality of care in posthospital settings.

In the current environment of Medicare cuts and failing state budgets, how will it be paid for? The CMS believes the reduction of avoidable hospitalizations and subsequent skilled nursing facility (SNF) stays is expected to result in significant savings to Medicare, and that money will be used to fund the incentive payments. What patients are included? The demonstration will include all Medicare beneficiaries who are in a nursing home (ie, those that receive only Part B benefits as well as those that receive Part A benefits, many of whom are also eligible for Medicaid). This article will describe the NHVBP project, and update members on the status of the new quality measures that may take effect with the MDS 3.0 and RUG-66.

## DEMONSTRATION STATUS

Centers for Medicare and Medicaid Services solicited nursing homes in the host states in March 2009. Nursing homes submitted applications to CMS, and in June, CMS selected a subset of the applicants to participate in the demonstration. The demonstration began July 1, 2009. The number of participating nursing homes in each state is as follows:

1. Arizona - 41 homes
2. New York - 79 homes
3. Wisconsin - 62 homes

## QUALITY MEASURES

The quality performance of the participating nursing homes will be assessed based on the following measures:

1. Staffing Domain (30% of Quality Score): The staffing measures for the demonstration are:
  - Registered Nurse/Director of Nursing (RN/DON) hours per resident day

- Total licensed nursing hours (RN/DON/licensed practical nurse) per resident day
- Certified Nurse Aide (CNA) hours per resident day
- Nursing staff turnover rate

Because differences in resident acuity affect the staffing levels needed to care for residents, the measures based on staffing level will be case mix adjusted. At a minimum, the case mix adjustment will be based on a nursing home's average Resource Utilization Groups-III nursing index. The CMS will collect payroll data from participants each quarter. These data will be used to calculate the nursing home staffing and turnover measures.

2. Appropriate Hospitalizations Domain (30% of Quality Score):

There are separate measures for nursing home short stayers and long stayers, based on the hospitalization rates of potentially avoidable hospitalizations. Potentially avoidable hospitalizations will include hospitalizations for a set of conditions. The potentially avoidable hospitalization measures will be risk-adjusted, using covariates from Medicare claims and the minimum data set (MDS.)

3. MDS Outcomes Domain (20% of Quality Score): A subset of outcome measures has been selected for the demonstration based on their validity, reliability, statistical performance, and policy considerations:

- a. Chronic Care Residents: Five of the quality measures (QMs) posted on Nursing Home Compare are being used:
  - Percent of residents whose need for help with daily activities has increased;
  - Percent of residents whose ability to move in and around their room got worse;
  - Percent of high-risk residents who have pressure ulcers;
  - Percent of residents who have had a catheter left in their bladder; and



- Percent of residents who were physically restrained.

For each of these measures, the exclusion criteria, minimum required sample, and risk adjustment methodology would be the same as used in the publicly reported measures.

- b. Postacute Care (PAC) Residents: Three of the PAC quality measures that were validated in 2004 are used:
  - Percent of residents with improving level of Activities of Daily Living (ADL) functioning;
  - Percent of residents who improve status on mid-loss ADL functioning; and
  - Percent of residents experiencing failure to improve bladder incontinence.

When MDS 3.0 is implemented, CMS will review this domain and may revise the measures as appropriate.

4. Survey Deficiencies Domain (20% of Quality Score): The survey deficiency domain will be used in 1 way:

- a. Survey deficiencies serve as a screening measure. Any nursing home that, in the demonstration year, receives a citation for substandard quality of care or that has one or more citations for actual harm or higher will not be eligible to receive a performance payment. This screening criterion will ensure that homes with otherwise high performance scores will not receive a performance payment if they had serious quality of care issues identified by surveyors.
- b. Survey deficiencies serve as part of homes' performance scores, based on the deficiencies that homes receive on their survey. Values will be assigned based on the scope and severity of deficiencies and the regulatory areas where deficiencies occur. Nursing homes will be ranked within each state according to their values.

Total performance score: Each year, CMS will determine the number of points that each nursing home is assigned for each domain, and will sum the points across all domains to yield an overall score for each nursing home.

The intent of the demonstration is to reward homes that provide overall high

quality care rather than those that excel in individual areas. Nursing homes will be eligible for awards based on both attainment and improvement. Each year of the demonstration, CMS will determine which participants are eligible for performance payments based on the following:

- Homes with an overall performance score that is in the 80<sup>th</sup> percentile or higher in terms of performance level qualify for a performance payment.
- Homes in the 90<sup>th</sup> percentile or higher would receive a performance payment that is 1.2 times the payment to those in the 80<sup>th</sup> to 90<sup>th</sup> percentile.
- Homes in the 80<sup>th</sup> percentile or higher in terms of improvement qualify for a performance payment in recognition of their improved performance (with those in the 90<sup>th</sup> percentile or higher receiving 1.2 times the payment as above), as long as their performance level was at least as high as the 40<sup>th</sup> percentile in the performance year. This required minimum level will ensure that homes do not receive performance payments for improvement if their overall level of performance is low.
- Performance payments will be based on the composite performance score rather than the scores on individual performance measures or categories of measures. Homes that qualify for a performance payment based on both performance level and improvement that are in different deciles (eg, the 90<sup>th</sup> percentile or higher for improvement and the 80<sup>th</sup> percentile or higher for high scores) would receive payment for either performance or improvement but not both. They would receive the higher of the two performance payments for which they qualify (eg, for improvement but not high score).

Payments are based on the "size" of the nursing home (ie, the number of resident days for residents who are Medicare beneficiaries, including beneficiaries whose nursing home stay is not covered by Medicare).

CMS will conduct an evaluation of this demonstration. Lessons learned from the evaluation will inform the design of a potential national nursing home value-based purchasing program.

**What does the future of the project look like?** In October 2009, this author had an opportunity to serve on a Technical Expert Panel (TEP) regarding the development of new nursing home quality measures. The Panel was made up of 7 physicians, 6 persons involved in Quality/Outcomes Management, 2 RNs, 1 OT, 1 PT, and 1 lawyer who works for Medicare Advocacy. There were also several persons from CMS who were there in an advisory role. The Research Triangle Institute (RTI), the group contracted by CMS to develop the new QMs, led the 2-day session.

Based on an extensive review of the scientific merit of the current MDS 2.0 based quality measures, RTI was tasked with the job of submitting a reduced set of quality measures (QMs) to the National Quality Forum (NQF) for 2010.

- Some MDS 2.0 QMs were recommended to be retired.
- Several of the measures would be revised to improve their performance and/or to harmonize with other NQF measures.
- Some new measures would be developed.

Many of the new quality measures that were considered were intended to increase the number of short-stay QMs. (CMS defines a "Short Stay" resident as those persons who are in a Part A stay without a NH stay prior, and they are discharged to community.) The development of additional QMs was boosted by the fact that in MDS 3.0, there will be a required discharge MDS assessment. The long-stay QMs are targeted towards the long-term resident in nursing homes.

While the panel was presented with 17 QMs for discussion, we whittled them down to 5 key measures, 3 of which would be applicable to both short stay and long stay patients and 2 which would be applicable to short stay patients. These were:

- Potentially avoidable rehospitalizations
- Discharge to community
- Injurious falls
- Effective pain management
- Improvement in ambulation

Potentially Avoidable Rehospitalizations: *Reports % of short stay patients discharged back to the hospital within 100 days of their Part A admission for the following conditions – heart failure, respiratory infection, UTI, sepsis, and electrolyte*



*imbalance.* While this measure garnered a lot of discussion around the topics of resource utilization, reduced payments to nursing homes, incentivizing the wrong behaviors, and penalizing nursing homes for appropriate hospitalizations when hospitals may have discharged the patient too early, the group determined that this overall measure was important to bring forward to NQF. We also suggested other conditions be considered, such as dehydration, anticoagulant therapy issues, and the group suggested removing sepsis. There will be exclusions and risk adjustors added to the measure to try to account for some of the issues and concerns described above.

**Discharge to Community:** *Reports % of patients discharged to community within 100 days of Part A admission.* This measure had a lot of backing by other advisory groups to CMS, such as MedPAC. The rationale behind pushing this measure is that it might be an indirect measure of the value of rehabilitation. The data supports the fact that most short stay residents receive rehabilitation and therefore it is important to consider. Percent of patients discharged home has also been correlated to higher staffing levels in nursing homes. Certain exclusions and risk adjustors were discussed for this measure as well as excluding those patients that were previously NH patients, patients admitted to the hospital within 3 days of being admitted (might be an indicator of the hospital's decision to DC too early), and patients discharged due to death. It would also be important to track patients discharged from the NH to the community but return to the hospital within 3 days, since this might be an indicator of the NH decision to discharge.

**Injurious falls:** *This measure would report the prevalence of falls with major injury in both short stay & long stay patients.* The group decided that limiting the measure to those patients with 'major' injury would be preferred rather than any injury. We defined major injury as subdural hematoma, fractures, and dislocations. This author and the OT on the panel raised concern with the unintended consequences this measure might have in NHs—such as increased use of restraints (both chemical & physical), and keeping patients in bed more by not encouraging mobility. We suggested there be risk adjustors and/or exclusions added to prevent this as much as possible, in

addition to monitoring other quality measures or survey information to insure this was not the case.

**Effective Pain Management:** *% of residents receiving some form of pain management whose pain frequency & intensity has decreased; for both short stay & long stay residents.* There was much discussion centered around the validity of any results gathered from this measure. The MDS 3.0 includes patient interview questions about pain levels, and while in the MDS 3.0 pilot testing, the questions appeared to garner valid answers, there were many on the panel who were concerned about applying those results to the national nursing home population. The group decided it would be best for RTI to go back to its test data to review the information again, and determine the measure should be applied to only those patients who were able to answer the question themselves. The nurses and therapists in the room, however, were concerned this might set up a 2-tiered approach to treating pain in nursing homes, so more modeling would need to be done to determine exactly what to include/exclude from this measure and how to risk adjust it.

**Improvement in Ambulation:** *% of residents whose ability to walk in their room or corridor has increased; for both short stay & long stay residents.* The panel spent a lot of time discussing the pros and cons of only included ambulation in this measure versus including some measure of mobility as well. The consensus was that RTI would go back and look at the mobility measures to see what the data showed for it. We discussed exclusions and risk adjustors, such as Stage III and IV pressure ulcers and dementia, as well as how much change would be considered an "increase."

On the last day for the last hour of discussion, the panel was invited to share other opinions and thoughts about measures which had not been discussed, but that might be considered important to the consumer. This was a very interesting discussion and highlighted the importance of rehabilitation in nursing home communities. Some suggestions were:

- Therapy staffing measures—similar to the nursing staffing measures currently being asked for, but might also include ratio of full-time/part-time staff to per diem staff, ratio of clinician to assistants, availability of all three therapy disciplines.

- Transition of care measures—such as setting/achieving goals and discharge planning.
- Standardized approaches to care, use of evidence-based guidelines.
- Presence of advanced practice nurses or specialty certified therapists.
- Measures of how therapy, nursing and physicians are integrated into the culture of the facility.
- Doctor response rate to calls and frequency of MD visits.
- Adverse drug reactions.

The next step is to take a final set of quality measures to the National Quality Forum for approval. Once approved, they will be announced as the QMs for 2010 – 2011 for nursing homes. Stay tuned to the Section on Geriatrics list-serve and APTA's Web site for more information.



Ellen Strunk, PT, GCS is President and Owner of Rehab Resources & Consulting, Inc., a company providing consulting services and training to providers in postacute care settings with a focus on helping customers understand the CMS prospective payment systems. She also lectures nationally on the topics of pharmacology for rehabilitation professionals, exercise & wellness for older adults, and coding/billing/documentation to meet medical necessity guidelines and payer regulations.

## WANTED: ARTICLES FOR GERINOTES

### TOPICS:

Anything related to older adults

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Send me an article or an idea

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Contact Carol Schunk, GeriNotes Editor  
carolschunk@earthlink.net



# CSM 2010: *San Diego, CA*

SOG Board of Directors Meeting  
John Barr, President  
Ruby Kendrick, Secretary  
Cathy Ciolek, Delegate



SIG Chairs  
David Morris, Health Promotion  
Judy Daniel, Balance and Falls  
Nancy Abodecley, Bone Health



Happy SOG members at member meeting



GCS Breakfast



Lucy Jones, Nominating Committee Chair  
Cathy Ciolek Section Delegate



SOG Board of Directors Meeting





# CSM 2010: *San Diego, CA*



Students from Marymount University with Rita Wong



Students attending SOG business meeting and dinner



New SOG Directors  
Mary Thompson  
Bob Thomas



Winners of the Student raffle with their prizes



SOG Gerinotes Editorial Board members at CSM

**Editors Note:** *Questions and Answers* is a new feature of *GeriNotes*. We are going to take questions submitted by readers or questions that commonly come up in courses or on the listserve and ones that we think would be of interest to readers. These questions will be answered by SOG members who have expertise in the area. I encourage readers who have questions or who would like participate in the column by responding to questions in their area to contact me at carolschunk@earthlink.net.

**1. Can you do a Berg Balance Scale test after a patient has a THA? If so, how soon?**

This will depend on whether any precautions are in place or not. With changes in current models of prostheses, precautions now vary according to the THA used and the surgeon. If hip flexion beyond 90° precaution is in place, this will require alterations in the chair or in the positions for sitting to standing, standing to sitting, and moving from chair to bed and back. In addition, picking up an object from the floor would be contraindicated if that precaution holds. If adduction beyond neutral precaution is in place, then standing unsupported with one foot in front (tandem) would need to be modified. Hence, it might be better to consider doing the Berg in its entirety after precautions have been lifted.

**2. On the item on the Berg that has the patient turn 360° to the right, stop, then turn to the left, do you measure each way separately or is it a combined score?**

According to Katherine Berg, each way is scored and each way should be less than 4 seconds. The patient/client is able to pause between the turns. Thus if the patient/client can turn 360° each way in under 4 seconds they receive a 4. If they turn one way in 4 seconds or less and the other way in 6 seconds, they receive a 3.

**3. On the Berg Balance Scale, do you score one foot or both feet for**

**the “standing unsupported one foot in front” and “standing on one leg” items and how does the patient/client choose their position?**

According to Katherine Berg, in the case of “standing unsupported one foot in front” you will demonstrate and instruct the patient to place one foot directly in front of the other. If they feel that they cannot place the foot directly in front, they should then be instructed to try to step far enough ahead that the heel of their forward foot is ahead of the toes of the other foot. The patient/client must then choose the foot and the position, get into that position, and stay with that choice for the timing and scoring. The same applies to the “standing on one leg” item where the patient/client chooses the stance foot and must stay with that for the timing and scoring.


If you want information about the opposite foot, it can be tested after you have completed the Berg.

**4. Does the Berg Balance Scale have to be done in a specific order?**

Again according to Katherine Berg, there is no evidence that the order of the tests of the Berg Balance Scale makes a difference. The only two where order is important is standing unsupported for 2 minutes and sitting unsupported for 2 minutes, since the latter is not tested if the former can be completed.

Questions and Answers in this issue focus on the Berg Balance Test and have been answered by:

**Marilyn Moffat, PT, DPT, PhD, DSc (hon), FAPTA, CSCS, CEEAA and Karen Kemmis, PT, DPT, MS, CDE, CPRP, CEEAA**



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# MEET THE GERINOTES EDITORIAL BOARD MEMBERS

## Part One

**Editors Note.** Every few issues we feature one of the leaders of the Section on Geriatrics so members will get to know those who are behind the scenes in making our Section the best. One group that has not been featured is the GeriNotes Editorial Board. This group of 12 individuals is responsible for writing or soliciting articles for the publication and serving as consultants to me as Editor. They are a very skilled group with a high level of expertise, and I so appreciate their hard work. They average 30 years as a PT and 21 years in the Section on Geriatrics. The following will allow you to get to know this group. This is a 2-part article. In the May GeriNotes, the Board's responses to questions about specializing in the older adult, GeriNotes, and the SOG will be featured.

### EDITOR

**CAROL SCHUNK, PT, PsyD**  
40 years as PT; 24 years in SOG



#### **Position and Responsibilities**

I work part time as a clinician in home health and hospice with Partners in Care in Bend, Oregon and as a traveling therapist with

PT on Call, in Oregon. I also present Home Care Rehabilitation continuing education courses for Great Seminars and serve as the Editor of *GeriNotes* for the SOG.

#### **Areas of interest/expertise as related to the SOG and GeriNotes**

Everything so I can present clinically relevant content that is of value and a member benefit to SOG members.

#### **Personal Side of Life**

I have a 26-year-old daughter, Morgan who teaches high school Spanish in the Bay area. That leaves me at home with the cat, dog, and all Morgan's stuff. She and I have had great times traveling together to destinations such as South

Africa and the New Orleans Jazz Festival. Personal fun time is spent playing tennis, tooting my flute in community symphonies, flat water kayaking, skiing, adventure, and dancing in the moonlight.



### GERINOTES EDITORIAL BOARD MEMBERS

**PATRICE ANTONY, PT, GCS, CMC, CAPS**

29 years as PT; 25 years in SOG



#### **Position and Responsibilities**

Owner/President of Elder Advocates Inc. and Managing Partner of Adaptable Living Design, LLC. Elder Advocates Inc is a care management consulting company designed to assist clients and their loved ones with medical and benefit decision making. Adaptable Living Design, LLC is a company that assists clients with designing or retrofitting their home so that they can Age in Place successfully.

#### **Areas of Interest/Expertise as Related to SOG and GeriNotes**

Care Management, Patient Advocacy, Accessible Home Consultant

#### **Personal Side of Life**

I have been married to Layton Milman for 5 years. I have a 20-year-old daughter (Kristen Antony) who is a Sophomore at Florida Atlantic University in Boca Raton, FL majoring in Marketing/Business. I enjoy reading, traveling, hiking, and exercising at the gym.



**JENNIFER M. BOTTOMLEY, PT, MS, PhD**

36 years as a PT; 26 years in SOG

#### **Position and Responsibilities**

Geriatric Rehabilitation Consultant/Advisor and Teacher. Numerous sites of employment.



#### **Areas of Interest/Expertise as Related to SOG and GeriNotes**

Dementia, Geriatric Ortho & Neuro, Women's Health, Public Policy and Legislation

#### **Personal Side of Life**

I am married, have 5 cats, love to hike and kayak, read, enjoy writing, and love throwing and attending theme-based parties. Last summer I had a TKR. Winter was better last year as I traveled down the Amazon River.



**KATHRYN BREWER, PT, GCS, MED**  
33 years as PT; 20 years in SOG



#### **Position and Responsibilities**

I work at the Mayo Clinic in Phoenix, Arizona providing outpatient therapy care and leadership in development of chronic disease management programs for older adults.

#### **Areas of Interest/Expertise as Related to SOG and GeriNotes**

Osteoporosis, Balance and Fall Prevention, Functional Assessment, Health, Promotion and Fitness

#### **Personal Side of Life**

I am originally from Ohio, married to my high school sweetheart. My daughter is a 2nd year PT student at Northern AZ University, my son is a junior, also at NAU majoring in forestry. Both are engaged and planning 2011 weddings!



**HELEN Z. CORNELLY, PT, EdD**  
**34 years as a PT; 20 years in SOG**



***Position and Responsibilities***

I am the Associate Dean for Academic Affairs in the College of Nursing and Health Sciences at Florida

International University. As Associate Dean, I oversee administration activities for physical therapy as well as nursing, occupational therapy, communication sciences and disorders, athletic training, health sciences, and health information management. As an Honors fellow, I teach in FIU undergraduate honors students as well. I was Interim Chair of the Physical Therapy Department from August 2008 until January 2010.

***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Falls and fall prevention in older adults and health promotion in older adults, as well as interdisciplinary gerontology education in the Caribbean nations.

***Personal Side of Life***

Three children, 2 Labradors to occupy my time; I love boating and deep sea fishing.



**NORA J. FRANCIS, PT, DHS, OTR**  
**30 years as PT; 14 years in SOG**



***Position and Responsibilities***

I am Assistant Professor and Assistant Chair of Clinical Education at Northwestern University (plan, coordinate, facilitate, administer, and evaluate

the clinical education component of the curriculum). I teach in courses related to part-time and full-time clinical education experiences.

***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Osteoporosis, Balance and Falls, Clinical Education Promoting Geriatric Practice Opportunities for Physical Therapist Students

***Personal Side of Life***

I have been married for 36 years; my spouse is senior pastor of First United Methodist Church, Evanston, Ill. I enjoy travel, walk/exercise, read novels, attend movies and live theater in Chicago, play in church hand bell choir, cherish time with friends and family. Last summer we vacationed in beautiful Maui; saw the sunrise over the Haleakala volcano and survived the road to Hana!



**JILL HEITZMAN, PT, DPT, GCS, CWS, FACCWS**  
**32 Years as PT; 18 years in SOG**



***Position and Responsibilities***

I am working on developing/improving the clinical education program and outpatient PT programs for a new

facility at East Alabama Medical Center in Auburn. I also teach online courses for College of St Scholastica and Iowa State University as well as CEU courses including the CEEAA courses for SOG

***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Functional outcome testing, wound care, social issues of the aging adult, the aging musculoskeletal system and how this relates to balance/falls, osteoporosis, and promoting successful aging.

***Personal Side of Life***

I love to travel and will be going to Cancun in March. I also love history, reading, sports, and running. This last year I was involved in moving my mom out of her long time home to a senior apartment complex so I learned a lot about relocation from the family viewpoint. I have been married to my best friend, Mike for 32 years this April and we have 4 children: 2 are performers in NY City, one is a senior in college back in Iowa, and one will graduate from NYU PT Program August 2010 and join me in my loved profession. We moved south to Alabama and I do not miss the snow and ice!



**LUCY H. JONES PT, GCS, MHA**  
**31 years as PT; 14 years in SOG**



***Position and Responsibilities***

Clinical Director for 3 facilities, coordination of patient care for the Certified Out Patient Facility (CORF) of Advantage Therapy Center, Cherry Hill, NJ.

***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Geriatric assessment and the process of solving the "Geriatric Puzzle" with evidence-based care is my passion. Integration and referencing the Section's Web site, [www.geriaticspt.org](http://www.geriaticspt.org), into GeriNotes will be an exciting challenge. I chair the SoG Web site Committee and the Nominating Committee, launching our first online Section on Geriatrics election this past year.

***Personal Side of Life***

I live in New Jersey, and have been married for 28 years with 3 adult children. My eldest daughter is a nurse who spent the summer of 2008 in Port-au-Prince, Haiti, making the recent needs there personal. My son is an accountant, cleaning up the economy one company at a time; and my youngest daughter graduates from college this semester. I graduate with my tDPT in May. In addition to exercise, gardening, and trying new recipes, my current challenge is to complete my 2nd 10K run with my daughter in March 2010



**SANDRA J. LEVI, PT, PhD**  
**35 year as PT; 15 years in SOG**



***Position and Responsibilities***

I am an Associate Professor at Midwestern University with primary teaching responsibilities for content in areas of geriatrics, health policy and professional roles and issues. I also serve as the Director for a newly-developed Doctor for Health

Science Degree program being offered by Midwestern University. I work part time in acute care at Evanston Hospital in Evanston, Illinois. I Co-chair a weekly pro-bono physical therapy clinic at Community Health in Chicago. Community Health serves persons with very low income and no health insurance. In January 2010, I began a 3-year term as President of the Illinois Physical Therapy Association.

#### ***Areas of Interest/Expertise as Related to SOG and GeriNotes***

I am particularly interested in the application of research to practice and tools to support clinical decision making.

#### ***Personal Side of Life***

My husband of 36 years and I take our three grandchildren on a "surprise ride" most Sundays and usually end up at a museum, nature area, or bookstore. Besides our son and daughter-in-law in Chicago, we frequently visit our married daughters and their husbands in New York and Boston.



**KENNETH L. MILLER, PT, DPT**  
14 years as PT; 5 years in SOG



#### ***Position and Responsibilities***

I work for Catholic Home Care and Good Samaritan Home Care (CHHA) as a home care Physical Therapist and clinical educa-

tor providing clinical education to the therapy staff of over 100 therapists. I am also the CCCE for Catholic Home Care located in New York and a teaching assistant for Touro College, Bay Shore Campus in New York.

#### ***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Care of the older patient relating to fall prevention, balance and improving bone health, and quality of life of our seniors.

#### ***Personal Side of Life***

My wife, Raquel and I have been married for 14 years and have 2 boys--Kody, 12 and Jacob, 10. We went on a family vacation last summer to Maine

and spent time hiking, fishing, and swimming. The boys and I like to golf together, and I play the guitar at church and for fun at home.



**WILLIAM H. STAPLES, PT, DPT, GCS**  
30 years as a PT; 25 years in SOG



#### ***Position and Responsibilities***

I am an Assistant Professor, Krannert School of Physical Therapy, University of Indianapolis, and work part-time home health care for Home Services Unlimited.

#### ***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Alzheimer and Parkinson disease

#### ***Personal Side of Life***

I have been married 26 years and have 2 daughters. I jog and play soccer for exercise. My hobbies include gardening, cooking, and wine making. I am currently finishing my Doctor of Health Science at the University of Indianapolis. I have just finished serving 9 years on the Section's Board of Directors including 6 as Treasurer.



**ELLEN R. STRUNK, PT, MS, GCS, CEEAA**  
18 years PT; 14 years SOG



#### ***Position and Responsibilities***

I am President and Owner of Rehab Resources & Consulting, Inc., a company providing consulting services and training to providers in postacute care settings with a focus on helping customers understand the CMS prospective payment systems in the skilled nursing facility and home health setting. I also lecture nationally on the topics of pharmacology for rehabilitation professionals, exercise & wellness for older adults, and coding/billing/documentation to meet medical necessity guidelines and

payer regulations.

#### ***Areas of Interest/Expertise as Related to SOG and GeriNotes***

Payment and Policy, Documentation, Functional Outcomes Measures, Exercise

#### ***Personal Side of Life***

I live in Birmingham, AL with my husband, Randall and cat, Tigger. We enjoy football, hiking, music, and recently, we have taken up Yoga.



**PAM WENNDT, PT, GCS**  
33 years as a PT; 17 years in SOG



#### ***Position and Responsibilities***

I am co-owner of Physical Therapy Partners a licensed rehabilitation agency. As a private practice owner, my time is

spent 100% in patient care and 100% in administration!

#### ***Areas of Interest/Expertise as Related to SOG and GeriNotes***

I enjoy all areas of physical therapy but my obvious interest in is geriatrics, vestibular rehab, and pelvic floor dysfunction.

#### ***Personal Side of Life***

I am single and live in the NE corner of the state of Iowa. I have 3 adult children and 2 grandchildren who are the delight of my life! I enjoy traveling, spending time with family, reading, skiing, swimming, and spoiling grandchildren! I plan to spend this summer enjoying my daughter's wedding in Mexico and her reception in Minnesota.



# SUNSHINE AND SMILES LEAD TO A GREAT CSM 2010

*Jill Heitzman, PT, DPT, GCS, CWS, FACCWS  
SOG Programming Chair*

Winter storms across the United States couldn't stop over 7900 therapists from attending CSM 2010 in San Diego. The California sunshine brought smiles to all of them as they left their winter clothing behind. Over 234 education sessions that covered clinical practice across all 18 sections added to the success of another triumphant Combined Sections Meeting.

The Section on Geriatrics lead off the CSM conference with 3 well attended preconferences that included how to set up a clinical residency and mentoring those residents. Did you know we have 5 certified geriatric residencies now and more that are awaiting the onsite visit? The third preconference left attendees realizing that yoga can be challenging as the instructor put them through 2 sessions of actual 1 ½ hrs of yoga moves. Many were heard stating they had moved muscles they forgot they had.

The preconference events also concluded another successful series of the Certified Exercise Expert for the Aging Adult bringing the total CEEAA therapists to 120. Make sure you register for one of these courses soon as attendees are telling us this is changing their practice. The next series starts in North Carolina this March and the Iowa series begins in the Fall 2010.

Combined Sections Meeting officially opens with the awards ceremony where we celebrate the success of the newly certified board specialists. We welcome our newly Geriatric Certified Specialists and hope to see you lead the way for the Section to move forward. The breakfast on Thursday morning was an opportunity to let these specialists meet members of the Section. Dr. Bill Staples told everyone about the exciting multidisciplinary conference, EXPAC, that the Section is holding at the University of Indianapolis. This conference will bring nationally recognized speakers, including Dr Robert Butler, to Indiana and is expected to be well attended. The conference leads off with a preconference on the aging systems to set the stage for a lively conference. Check out the Section's Web site for more information.

CSM continued through the next 3 days with sessions on dementia, balance, low back pain, exercise, being proactive in making the home safe, smoking cessation, and gait evaluation. Speakers are selected from submissions to ScholarONE based on being evidence based and topics of strong interest to the Section's members. This process is done by Program Committee members. These members also work hard at CSM making sure each program runs smoothly. This year the members of the program committee included: Rubye Kendrick, Ellen Strunk, Celinda Evitt, David Morris, Kelly Renner, Reenie Euhardy, Sarah Jameson, Priscilla Raasch-Mason, Melissa Peterson, Nancy Abodeely, Becky Crocker, Jodi Handler, Lucy Jones, and Judy Daniel. Without their help, CSM would not be as successful each year. Thank you to all of the committee for their hard work. If you are interested in being on this committee, contact me at [jheitzpt@aol.com](mailto:jheitzpt@aol.com).

CSM 2011 plans are now underway. If you have a topic you would like to present, make sure you submit the proposal by April 1. The process for submission is easy. Go to the APTA Web site and follow the links to CSM 2011, Scholar ONE abstract submission. You submit education sessions by entering the title, a short description of

the sessions, a list of speakers, 3-4 objectives for the course session, and you must include 3-4 references for the course material. The program committee members have criteria for selection and the review process is a blind review (that means they do not see who the speakers are until after they rate the program submission to ensure they are not swayed one way or another by speaker reputation). The acceptance for programs does not come out until July, so be patient. With 18 sections working on programs there is a lot of space and time negotiations that must take place. When all is done, we will have another fantastic meeting set for New Orleans in Feb 2011.

Make your plans now to join us in New Orleans Feb 9-12, 2011. This will be a meeting you won't want to miss.



PHYSICAL THERAPY  
UNIVERSITY OF MINNESOTA

## Clinical Residency in Geriatric Physical Therapy

The University of Minnesota Program in Physical Therapy is seeking applications for a new Geriatric Clinical Residency beginning September 2010. This 12 month program will provide residents extensive didactic education, clinical practice, and individual mentoring in the area of geriatric physical therapy and issues related to aging. Clinical Faculty are geriatric experts in a number of disciplines. New graduates and experienced clinicians are encouraged to apply. Resident graduates will be prepared to sit for the GCS exam. Residents will earn a salary with benefits, and pay minimal tuition. For an application or further information, please contact Residency Director, Becky Olson-Kellogg, PT, DPT, GCS at 612-624-6591 or [olso0184@umn.edu](mailto:olso0184@umn.edu)  
***Applications due March 31, 2010.***



# INCONTINENCE...A MATTER OF CONTROL

## A CASE REPORT

*Pam Wenndt, PT, GCS*

Bladder and bowel incontinence is common in the aging population, affecting 1 out of 3 older people. This condition is more common among women than among men until after the age of 85, when it tends to affect both sexes equally. Many people live with incontinence without seeking medical help because they fear it indicates a more serious illness or they are embarrassed to even ask. Others mistakenly believe that incontinence is a normal part of the aging process. On the contrary, bladder and bowel incontinence is abnormal at any age. When it does occur, it is often treatable and curable. "Barbara" presented at my clinic with bladder and bowel incontinence and total "loss of control." Barbara's presenting medical history, functional losses, and her recovery with skilled therapy intervention are guidelines for all of us treating today's active aging population.

### CASE HISTORY

Barbara is a very active 80-year-old female. She is married and exercises daily--walking 1 to 2 miles every other day. She is a retired college English professor and continues to contribute to the local newspaper. Her gynecologist referred her to physical therapy due to her complaint of increasing bowel and bladder incontinence. She states the lack of bowel control is the most embarrassing and causes her to stay home and cancel social events. She also reports bladder incontinence but thought this was "normal for her age." She notes the bowel and bladder incontinence often occurs with "stress" events, but also half way through her daily walks and more so in the evening time. She also reports that she is sensitive to high fructose/fatty foods that result in bowel urgency and incontinence.

### Medical and Physical History

Barbara had 3 vaginal childbirths with no symptoms of bladder or bowel incontinence in the years following. She had a total hysterectomy at age 40 and was then placed on Premarin until 2006 when this was stopped due to lymphoma diagnosis. Her gynecologist recently restarted Barbara on a low dose of Premarin. She was diag-

nosed with colon cancer in 1996 and underwent a transverse colon resection, again with no bowel or bladder symptoms at that time. A lymphoma diagnosis in 2006 was treated with chemotherapy and she has been in remission since that time. This is the date of onset of Barbara's complaints of bowel and bladder incontinence. She denies symptoms or history of spinal, pelvic, or dyspareunia pain.

Barbara is a "chest breather" and exhibits minimal skill or knowledge regarding diaphragmatic breathing. Her lower abdominal and pelvic visceral mobility is hypomobile. Her bowel habits include a daily bowel movement of normal consistency without complaint of constipation. Bowel incontinence occurs following exercise and after eating high fructose/fatty foods. Her bladder habits include excessive voiding every 1 to 2 hours during daytime and waking 4 to 5 times each night to void. Bladder incontinence occurs with stress events and strong urge habits. Unaware of how to prevent the leaking, Barbara has simply let the urine "run out" onto a pad or Depends garment.

### Examination

Visual exam of the perineum is within normal limits for a patient of Barbara's age with thinning of the tissues. It is interesting to note that the innervation of the external genitalia is from the ilioinguinal nerve, genitofemoral nerve, and femoral cutaneous nerve that are often affected by lower abdominal surgery or adhesions.<sup>1</sup> She has a lower abdominal scar from the transverse colon resection; and as noted previously, the tone and tension of the viscera is hypomobile. Examination of the musculoskeletal pelvis, hips, and spine were within normal limits.<sup>2</sup> Barbara's description of rapid emptying following high fructose/fatty meals relates to the history of transverse colon resection.

Surface electromyography with initial instruction in active contraction of the pelvic floor muscles confirm that Barbara has minimal knowledge regarding the location and accurate contraction of these muscle groups. Initial contraction shows 2.0MV of activity for a duration of 3 seconds maximum.

### Impairments

Patient impairments were identified as the following:

- 1) High motility/short absorption pathway in the lower colon
- 2) Low visceral mobility in the lower abdominal organs/poor diaphragm support
- 3) Muscle weakness in the pelvic floor diaphragm
- 4) Neuro-motor dysfunction with patterning and Type I/II fiber use in the pelvic floor
- 5) Behavioral patterns that supported the pattern of bowel/bladder incontinence
- 6) Lack of education and knowledge regarding the pelvic floor and bowel / bladder continence

### Intervention

Barbara was treated for 8 sessions of physical therapy with neuromuscular re-education and therapeutic exercise. The following treatment applications were used:

- 1) recommendation of the addition of a bulking agent to slow the motility in her colon in conjunction with her primary physician,
- 2) skilled teaching for diaphragmatic breathing and gentle visceral mobilization, neuro-muscular re-education using surface EMG for motor strengthening and development of Type I and II fiber use in the pelvic floor muscles,
- 3) neuromuscular re-education with transfer of initial application to daily functional use to prevent and control her symptoms of bowel and bladder incontinence, and
- 4) education regarding the impact of various food groups and behavioral patterns on incontinence and reversal of the symptoms.

### Outcomes

Barbara was a skilled and motivated client with high compliance for follow-through on education and instructions. She was able to elevate the EMG activity from 2.0 to 7.0 MV and duration of 8 to

10 seconds during her active treatment time. She self rated her improvement at 75% at discharge with reduction in night time voiding to only an occasional night time void and lengthened daytime voiding to every 3 to 4 hours. She reported the ability to prevent and control bladder incontinence with stress events and her daily walking/exercises. The bowel incontinence improved greatly with the bulking agent and further with the progression of pelvic floor strength and control. She continues to have urge when eating certain food groups but can now control her bowel activity so she can use the bathroom when needed. She is able to complete her daily walking without fear of bladder or bowel leaking!

### KEY POINTS

1. Evaluation of the patient presenting with bladder/bowel incontinence must include a careful and exact medical history. In Barbara's case, although she had several previous events (childbirth, hysterectomy, colon cancer, and surgery) that may have resulted in pelvic floor weakness, it was actually the lymphoma, chemotherapy, and hormonal medication change that triggered the onset of weakness, behavioral changes, and incontinence.
2. The evaluation of pelvic floor dysfunction must include the alignment and mobility of the surrounding joints. History of trauma, surgeries, and falls should be included.
3. The concept of organ mobility and stability is key to the understanding of pelvic floor dysfunction and must be included in the treatment plan.<sup>3</sup>
4. The progression of neuro-motor training and exercise to meet the functional strength and utilization goals at a client self rating of 75% is a strong predictor of success and long-term outcomes for this patient population.

### CONCLUSION

Our responsibility as physical therapists specializing in geriatrics to intervene on behalf of clients suffering from this "matter of control" is the key to the health of our aging population. I feel we are uniquely positioned with our education, skill, and knowledge to treat or at least refer to another clinician specializing in pelvic floor dysfunction. This case study is a brief example of one patient and the success that therapy brought to her.

All readers are encouraged to investigate and participate further in education regarding pelvic floor dysfunction. The Section on Women's Health, APTA provides excellent programming and options to advance our knowledge in this important area.

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Pam Wenndt, PT, GCS, is a physical therapist with 33 years of experience in areas of home health, long-term care, acute care, and outpatient private practice. Her primary area of interest is geriatrics with specialization in pelvic floor dysfunction. She received her physical therapy degree from the University of Iowa and is a member of the first class of board certified geriatric clinical specialists. She can be reached at: [pjwennndt@cfu.net](mailto:pjwennndt@cfu.net).

### THE SECTION ON GERIATRICS WOULD LIKE TO THANK THE PROGRAM COMMITTEE FOR AN EXCELLENT JOB WITH CSM 2010.

CHAIR, Jill Heitzman

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### THANK YOU CSM BOOTH VOLUNTEERS

Sincere thanks to everyone who volunteered at the CSM 2010 Section booth! Because of their efforts, we recruited more new members than ever before, and distributed lots of great information about PT and the aging adult.

Sherri Betz  
Karen Kemmis  
Sue Leach  
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Others who did not sign in

THANK YOU!!!



SOG Booth

# DIFFERENTIAL DIAGNOSIS OF STRESS FRACTURES

Lucy H. Jones, PT, GCS, MHA

Stress fractures of the lower extremity are frequently associated with sports participation that involve repetitive stresses such as running and jumping. The initial diagnosis can be made by localizing the area of pain and receiving specific patient history of pain related to an activity and relieved with rest from the activity.<sup>1</sup> However, in the geriatric population, some traumatic conditions, metastatic diseases, nutritional or hormonal deficiencies, or decreases bone densities can cause stress fractures that are not defined by repetitive activity.<sup>2</sup> Stress fractures of the lower extremity most commonly involve the tibia and metatarsal bones, with those of the fibula, pelvis, and femoral neck of the femur being less common. With various factors contributing to acquiring a stress fracture, it can occur due to a repetitive use injury that exceeds the innate quality of the bone to repair itself. Or in the case of a compromised older adult with various comorbidities and various medications, a small and relatively slight impact may cause a fracture.

## PATHOGENESIS

### Etiology

There are 2 schools of thought on the etiology of stress fractures. One being that during the initial increase in exercise activity, the osteoplastic activity of bone building trails the osteoclastic activity of breaking down bone due to reabsorption, by about 2 weeks. This results in a window of increase susceptibility for injury.<sup>1</sup>

Stress fractures can occur in athletes, but also in those who are deconditioned, who are beginning a new exercise program, and who begin a physical training program that might not have been their norm previously. Women are more likely than men to develop stress fractures, but approximately 60% of individuals with stress fractures have had a previous stress fracture.<sup>3</sup>

Two components are contained in human bone. Cortical, or compact bone, is usually present along the outer margin of long bone, with its individual components called osteons. Trabecular, or

cancellous bone, is the network of bone supports found in the central portions of long bones. "Stress" is the force placed on the bone that can arise from muscular action and weight bearing. A change of shape of the bone from bending, or torsion, is referred to as a "strain." "Flexible" forces are noted along the convex side of the bone, while "compressive" forces occur along the concave margin.<sup>3</sup>

### Risk Factors for Stress Fractures for the Older Adult

1. Glucocorticoid medications
2. Female gender
3. Hormonal disturbances
4. Low bone rate turnover (can be due to medication causing bone absorption)
5. Decreased bone density, osteoporosis
6. Decreased thickness of the cortical bone
7. Nutritional deficiency, lack of appetite
8. Extremes of body size and composition
9. Inappropriate footwear, not wearing diabetic protective shoes
10. Inadequate muscle strength, inactive or sedentary lifestyle
11. Previous stress fracture
12. Poor flexibility, inactive, debilitated<sup>4</sup>

### Stress Fracture Types

There are 2 general types of stress fractures. An insufficiency fracture occurs when normal strength is given to abnormal bone. A fatigue fracture occurs when normal bone is subjected to repeated stress. None of the individual stresses are able to produce a fracture, but they can lead to a joint or bone mechanical failure over time with continued stress. It is this fatigue variety of stress fracture that is seen most frequently.<sup>4</sup>

In normal bone loading during exercise and activity, with sufficient time for the remodeling process to occur, bone mass should remain unchanged with

no stress injury, and bones can become stronger. If the load is distributed often and for a prolonged period of time, the reabsorption of bone dominates. The ability to form and lay down new bone does not proceed as expected. This can result in a weakened bone and a stress fracture can occur. With the repeated microtrauma to a previously stress-injured bone, a stress fracture may result. This can be noted on radiograph, where as a single stress fracture occurrence may not.<sup>1</sup>

In addition, attention must be paid to the time progression of a stress fracture. In the cortical bone, initial changes include subtle, or faint intracortical radiolucent striations, known as "gray cortex sign." This is related to osteoclastic tunneling found in early remodeling. It can be easily overlooked until the endosteal thickening occurs or periosteal new bone formation occurs to support or brace the temporarily weakened bone cortex. As the damage increases, a true fracture line may become visible. In cancellous bone, however, subtle blurring of the trabecular margins, and some faint sclerotic radiopaque areas may be noted, but radiography (x-ray) loses its already limited sensitivity with this fracture. A 50% change in bone opaqueness is the finding for these changes to be detectable. As the pathology progresses, an apparent sclerotic band will be noted. A stress fracture is usually perpendicular or at an angle to the cortex with more delicate linear periosteal reaction, often relieved by rest.<sup>3</sup>

### IMAGING

In a stress fracture of the lower extremity, radiographic films initially show normal, then with a 3 week postinitial incidence of pain film, the classic signs of stress fracture including periosteal reaction, endosteal new bone formation, and a radiolucent intracortical fracture line can be seen. Other medical conditions can mimic these indications, but do not follow the pain path or are necessarily relieved by rest.<sup>3</sup>

Computed tomography scanning has a limited role with evaluation, assessment, and diagnosis with stress fractures being



less sensitive, but can play an increased role in longitudinal fracture diagnosis because of their vertical orientation.<sup>1</sup>

The MRI can help distinguish particular areas of stress fractures, but is not often used with the older population, due to the ease of the radiograph, and the definitive point tenderness over the potential fracture site indicating the site to be imaged. The increased water content of the stress fracture in medullary edema or hemorrhage shows a high signal activity against the darker background of fat and improves the MRI sensitivity. The multiplanar capability of MRI provides an advantage by allowing for the optimal view of the fracture plane.<sup>3</sup>

With this understanding, radionuclide bone scanning has become the “gold standard” for assessing and evaluating stress fractures due to its ability to reveal subtle changes in bone metabolism before it can be seen in radiography. The classic bone scan findings of a stress fracture show a specifically intense, spindle shaped area of cortical uptake. There is a spectrum of uptake intensities causing a need for a formal grading system of stress fractures. A “hot spot” is shown on the bone scan at the maximal point tenderness. The rate of positive radiographs increases with increasing grade. Mild low grade lesions, however, are noted more quickly with bone scanning, allowing for diagnosis and early treatment with earlier resolution.<sup>1</sup>

### INSUFFICIENCY FRACTURES IN THE ELDERLY

The fatigue fracture of healthy bone occurs with unusual mechanical overloading more often in younger persons. Insufficiency stress fractures occur when normal forces are distributed over abnormal bone becoming fragile due to increasing age, metabolic disease, lower extremity disorder, prior orthopedic surgery, immobility, or diminished mineral content, with the bone intolerant of even moderate stress.<sup>4</sup> Osteoporosis is a contributing cause of these fractures, however, females with rheumatoid arthritis treated with long term glucocorticoid use, those with COPD using inhalers with glucocorticoid components, renal failure with long term steroid use, Paget disease, Vitamin D deficiency, past fluoride treatment, or other bone metabolism disorders resulting in impaired bone matrix.<sup>5</sup>

Bone insufficiency in the presence of comorbidity can be an insidious condition in the elderly. It can be a consequence of chronic disease and difficult to diagnose because there may be not history of a fall.<sup>6</sup> Pelvic and sacral insufficiency fractures can present as pain, at times debilitating, requiring a bone scan, or an MRI in some cases, to finalize the diagnosis. Sacral insufficiency fractures may be overlooked in those elderly patients presenting with low back and pelvic pain.<sup>7</sup> Insufficiency fractures have been noted to occur in the medial femoral condyle, and patella with osteoarthritis, and Parkinson disease to a lesser extent. A stress fracture may present with pain upon weight bearing with initial negative radiographs. Presentation of knee pain can be inconclusive but prepatellar pain, a common symptom of the relapse phase of degenerative arthritis, may be referred pain from a stress fracture of the patella.<sup>8</sup>

### Stress Fracture Research Study

A study of 70 long term facilities in Strasbourg, France, was conducted over a 30 month period with 11,495 elderly residents in 2000. In 30 of these facilities, 3,052 elderly patients experienced spontaneous insufficiency fractures, with the mean age of the patients being  $85 \pm 7$  years. The prevalence of the entire population of 11,495 was .34%. When calculations were limited to the 30 facilities involved, the prevalence was 1.3%. Fractures of the long bones included 15 fractures of the femoral neck, 14 of the tibia or fibula, 13 of the femoral shaft, and 11 of the humerus. The greatest mortality arose from the fracture of the femoral shaft as 7 out of 13 died of related injuries within 6 months, as compared with 2 out of 15 who had a stress fracture of the femoral neck. The prognosis was found to be greater in those with long bone fractures as compared with other locations of stress fractures in this study.<sup>9</sup>

### CONCLUSION

The key to diagnosis of an insufficiency stress fracture is early treatment and imaging. Diagnosis can be delayed or incorrect because a stress fracture was mistaken for another condition. Radiographs can be inaccurate for the diagnosis of stress fractures, but bone scans can reveal the “hot spot.” However, an MRI may be used to rule out malignant disease, infection, or necrosis in the area of pain.

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## CERTIFIED EXERCISE EXPERT FOR AGING ADULTS

### Certified Exercise Expert for Aging Adults

PTs with the CEEAA credential will demonstrate expert clinical decision-making skills in (1) designing and applying an effective examination and exercise prescription and (2) measuring the effectiveness and reflecting the current evidence of exercise for all aging adults. The process to attain the credential of "Certified Exercise Expert for Aging Adults" is to complete formal didactic education, and to participate in supervised and mentored skills development, home-based reflection, and critical thinking. Three courses of two days each will address three different and increasingly complex aspects of exercise design and delivery. The three courses are designed to build on each other; however, Courses 1 and 2 can be taken out of sequence.

### Upcoming CEEAA courses and locations:

#### Boston, MA:

CEEAA

Course 2: April 10-11, 2010

Course 3: June 19-20, 2010

CEEAA

### Announcing New CEEAA Course Series:

Asheville, North Carolina (@ Haywood Medical Center  
Clyde, NC):

Course 1: March 20-21, 2010

Course 2: May 1-2, 2010

Course 3: September 18-19, 2010

### Des Moines, Iowa (@Des Moines University)

Course 1: October 23-24, 2010

Course 2: March 19-20, 2011

Course 3: May 14-15, 2011

Look for more information regarding the CEEAA series courses coming to Dayton, Ohio soon!

Contact Latasha Magness at [lataschamagness@apta.org](mailto:lataschamagness@apta.org) to register for any of these courses!

If you are a facility interested in hosting the CEEAA series or are interested in hosting any other courses please contact Danille Parker or NovaLeigh Dodge-Krupa, co-Chairs of the Regional Course Committee at [danille.parker@marquette.edu](mailto:danille.parker@marquette.edu) (414-288-3179) or NovaLeigh.

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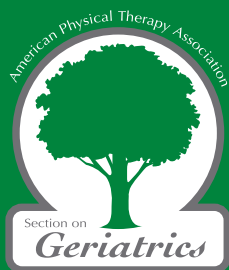
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Electronic submissions for poster presentations will be open December 1, 2009 through January 22, 2010 (with notification by March 1, 2010).

A 1-day preconference geriatric review course will be held July 28, 2010. See [www.expaac.org](http://www.expaac.org) for more details.

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You can't help getting older

but you don't have to get old.

- George Burns



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