American Physical Therapy Association / Neurology Section

Balance and Falls SIG

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Balance and Falls SIG Update

Update from the Chair – Fall 2009

The Balance and Falls SIG continues to move forward in its efforts to raise awareness among professionals and consumers about issues surrounding balance dysfunction and fall prevention.
Our education programs at past CSM meetings have been focused on defining balance and identifying components related to balance deficits.
We will continue along that track with future programs and discussions. We will be offering an education program at CSM 2010 in San Diego titled: “Balance assessment in different practice settings. Can and should we use the same measures”. This will be a panel discussion with representatives from different practice settings sharing their insight into their specific practice.

Our round table discussion topic is “Fall risk assessment and measures used for fall risk: are they the same as measuring balance?”. We hope to generate lively discussion with this topic as in the past.

Following the elections this spring, our SIG officers are:

- Melissa Fong: Vice Chair
- Cece Griffith: Secretary
- Steven Allred: Newsletter Editor
- Rene Crumley: Nominating Committee Chair
- Tammie Johnson: Nominating Committee
- Renee Hakim: Nominating Committee
- Erin Kineen: Webmaster
- Joanne Wagner: Newsletter

Please contact any of the SIG officers if you are interested in becoming more active in the Balance and Falls SIG

Updates from Combined Sections

Paying attention, making choices: the role of cognition in falls prevention.

Rob Winningham, Mike Studor, Karen McCulloch

Lee Dibble:

Individuals with dementia are at risk for falls due to problems with: attention, inhibition, and working memory. These individuals may demonstrate problems with impulse control and executive function. Due to these deficits there is an increased risk for falls especially in dual task situations in gait and balance. Deficits in balance may be related to cognitive inflexibility and changes in anticipatory and reactive responses.

- Depression may impair selective and sustained inhibition and affect executive functional ability. This may also lead to increased risk for falls and difficulty with dual task paradigms.
- Cognition and balance are directly related, and evidence demonstrates with aging the frequency of falling increases. Older individuals who do fall, develop a fear of falling, which makes them more likely to fall. In this health care environment, falling is expected! In the older population comorbidities also add to the increased risk for falls. Many community dwelling elders are less active due to a fear of falling even in the absence of a fall.
- Specific diagnoses, due to the impairments associated with them, create an increased risk for falls. These include Parkinson's Disease, stroke, and Traumatic Brain injury. Similar to the elderly population, these individuals have difficulty with dual task performance.
- In all populations regardless of diagnosis or past falls it is important to use a battery of outcomes measures to determine risk for fall and areas of deficit. A battery of tests can help the PT determine the areas of functional limitation and lead to successful intervention strategies.

Balance and Falls SIG meeting and Program:

Defining Balance

Ann Shumway-Cook, Fay Horak, Roberta Newton, moderator: Sue Whitney:

Putting Balance in Context: Some Definitions

- Balance is the capability of organism to rapidly and appropriately respond to internal and external demands. Balance is the ability to control position or movement of the COM relative to the BOS with automaticity and specificity. Balance is a learned sensorimotor skill involving postural orientation to coordinate body equilibrium. Balance is a learned sensory motor skill developed over time perhaps with a genetic component. An inherent component of balance is postural control. Postural control involves the systems of balance and control generated by the CNS, and the musculoskeletal system.
- How is balance measured?
  - Direct: measure position and movement of COM relative to something
  - Indirect: self report
  - NIH Toolbox: outcome measures to determine different aspects of functional ability related to the ability to maintain balance and postural control.
- Within the next 5 years will have a small wireless device to put on people to quantify gait and balance: instrumented Dynamic Balance (miniBEST).
- How do we explain balance, a multi-factorial control mechanism, to our patients?
  - Older individuals may lose the ability to quickly generate enough force to take a step following a perturbation and fall.
  - People are good judges of balance control according to studies.
  - Education is an important aspect of PT.

National Council on Aging – Falls Free Coalition

- NCOA is a national voice for older adults – especially those who are vulnerable and disadvantaged -- and the community organizations that serve them.
- NCOA brings together non-profit organizations, businesses and government to develop creative solutions that improve the lives of all older adults.
- NCOA works with thousands of organizations across the country to help seniors live independently, find jobs and benefits, improve their health, live independently and remain active in their communities
- The Falls Free™ Coalition is a collection of national organizations and state coalitions working to reduce the growing number of falls and fall-related injuries among older adults.
- Website: http://www.healthyagingprograms.org/content.asp?sectionid=113
- In 2005 the Falls Free Coalition developed goals for Falls Free: Promoting a National Action Plan http://www.healthyagingprograms.com/resources/FallsFree_NationalActionPlan_Final.pdf

Ever wonder how you can find out about community resources related to fall prevention? Want to start something in your community but don't know where to begin? The Falls Free Coalition is a part of the National Council on Aging's Healthy Aging initiative. Their goal is to reduce the number of falls among older adults.

One of the ways that they do this is by working with state and local coalitions. The Falls Free Coalition is able to network organizations and people who are interested in promoting fall prevention efforts. A great resource on how to build a state coalition is offered at the following address: http://www.coalitions.fallsfree.org/ It outlines the goals of the coalition and how to approach state organizations to gain support. Currently there are 23 state coalitions and the number is rising. Another great way to further your efforts is by contacting the Coalition directly. You may be connected to another member or organization that can serve as a resource. The cost of falls and need for falls prevention only continue to increase. To keep the initiative alive, the Falls Free Coalition asked members to participate in a work group to review progress and set new goals.

Meeting in March of 2008 the group came to consensus on five areas:

Build new partnerships and relationships to advance the Falls Free™ Initiative

Develop effective messages to build awareness in a variety of stakeholder groups

Create compelling business cases for investing in fall prevention

Enhance data collection and evaluation efforts already underway

Obtain substantial new funding to take this work to a national scale

For more information about the coalition and how you can help in fall prevention, contact Lynn Beattie, PT, MSPT. MHA at bonita.beattie@ncoa.org
http://en.wikipedia.org/wiki/National_Falls_Free_Initiative

Neurology Section Roundtable 2009: Outcome Measures in Balance and Falls[1]

How Should I Measure (examine) Balance?

The Balance and Falls Special Interest Group continued its focus on balance and falls measurement by asking "How should I measure balance?". To begin to answer the question, specific outcome measures were placed into the ICF model framework. During the discussion a recommendation was made to include the use of Gentile's Taxonomy as a part of the framework. The culmination of the discussion resulted in the creation of a table utilizing both the ICF model and Gentile's Taxonomy. The table is provided below.

Participants of the discussion consisted of clinicians in the areas of acute care, home care, inpatient rehab, outpatient rehab, and academic faculty. A consensus was made that therapists in the different practice settings may utilize different outcome measures to determine the impairments, functional limitations, and limitations to participation related to balance. The overall goal determined at the Roundtable was the identification of outcome measures related to balance regardless of practice setting. The participants may great headway in this process. This is a work in progress.

The next step is to develop a similar framework and layout for Fall/Risk assessment, since there is a strong movement toward fall risk assessment and prevention in current PT practice.

Bring it to Life

We are a profession focused on function. So what if some one increases strength, but has no functional application?

Information can be the same way. The increase in knowledge takes on a whole new meaning when it changes the way we think and ultimately the way we practice. Perhaps we change our approach or a new piece of knowledge sparks our interest to learn and research a topic more in depth. What ever the result, the application of knowledge that brings about a better clinical outcome is a good thing.

To foster bringing knowledge to life, we want to hear from you about how you are using the information in this newsletter to bring about a better clinical outcome.

Better yet, if you have been pursuing clinical practice based in evidence, tell us what you have learned and how it changed the way you practice.

We will have a section each newsletter that features entries received (there may need to be some editing for content). Send in your experience and result to:

Steven Allred
Steven.Allred @gentiva.com

Linda Csiza
LCsiza@mail.twu.edu

We look forward to hearing from you!
- The Balance and Falls SIG team

[1] See Figure 1 for a conceptual representation of this effort, page 6 of the newsletter

Late Breaking News!

Falls Prevention Awareness Day

Plans are underway in 20 states to promote fall prevention in conjunction with National Fall Prevention Awareness Day on September 22, the first day of fall. These states include Arizona, California, Connecticut, Florida, Hawaii, Illinois, Kentucky, Massachusetts, Maine, Minnesota, New Jersey, North Carolina, Nebraska, New Hampshire, New Mexico, New York, Pennsylvania, Texas, Washington, and Wisconsin. In addition, Montana and Alaska are exploring options to participate. The Falls Prevention Awareness and Advocacy Committee created a Web site with a variety of tools and resources for states and communities to use in this effort to promote falls prevention. For more information on the State Coalitions on Fall Prevention Workgroup you can access a report on the web. The state chapters and local therapists are making significant contributions and in some cases helping to lead the state coalition efforts. For more information on how you can become more involved contact fallsfree@ncoa.org

How should I measure (examine) Balance Control?[2] Facilitators: Marcia Hall Thompson , PT, DPT, DSc Candidate Kathy Brown, PT, NCS				
Pathology	Body System Impairment and Function Impairment Skill Function			Participation
Med Review	System Assessment	Learning	Functional Assessment	APPLY GENTILE'S TAXONOMY
History	GOS (Limbic)	FR	SPP well elderly TUG* MTUG*	
History of Falls*	Dementia	SLS	5X STS	CS-PFP (well elderly, MS)
MMSE/Cognitive	Anxiety/Depression	Tandem stance	6min walk Brain Injury: HIMAT	MSQOL
Vitals/Cardiovascular	ROM ,Strength	Romberg		SIS
Cranial Nerves	Sensory-vibration	MDFR	*GAIT Velocity *BERG (elderly, MS, PD, CVA)	SF36
Romberg	Vision/oculomotor	DVA	GST	DHI vestibular
Dix Hallpike (BPPV)	Coordination	CTSIB: MCTSIB	Task specific mvmt analysis	VADL vestibular
Vestibular Testing Rotatory chair ENG/ECOG	Pain assessment Posturography	Movement pattern	*TINETTI	IADL Self Report (CHIEF, CHART)
Movement Analysis	Movement Analysis		Movement analysis	FAMS, MSIS
	Postural assessment	Sensory weighting	*DGI (vestibular elderly, pd, ms)	
	Stroke Assessment: FUGL MEYER	Reactive and anticipatory control	Fullerton (well elderly) *FGA (vestibular, elderly) Four square step test	
Environment HOME SAFETY				
Personal EFFICENCY AND CONFIDENCE SCALES				

Figure 1

[2] See Appendix for definitions of abbreviations

Appendix

MMSE: Mini Mental Status Exam

BPPV: Benign Paroxysmal Positional Vertigo

ENG: Electronystagnography

ECOG: Electrocochleography

GOS: Glasgow Outcome Scale

FR: Functional Reach

SLS: Single Limb Stance

MDFR: Multidirectional Functional Reach

DVA: Dynamic Visual Acuity

CTSIB: Clinical Test of Sensory Interaction on Balance

MCTSIB: Modified Clinical Test of Sensory Interaction on Balance

VADL: Vestibular Activities of Daily Living

BADL: Basic Activities of Daily Living

IADL: Instrumental Activities of Daily Living

HIMAT: High Level Mobility Assessment Tool
CVA: Cerebral Vascular Accident

PD: Parkinson's Disease

TUG: Timed Up and Go

MTUG: Modified Timed Up and Go

BERG: Balance assessment

TINETTI: Gait and Balance Assessment

DGI: Dynamic Gait Index

FGA: Functional Gait Assessment

CF-PSP: Continuous Scale Physical Function Performance

MSQOL: Multiple Sclerosis Quality of Life

SIS: Sickness Impact Scale

DHI: Dizziness Handicap Inventory

SF36: Health Survey

CHIEF: Craig Handicap Inventory of Executive Function

CHART: Craig Handicap Assessment and Reporting Tool

FAMS: Functional Assessment of Multiple Sclerosis

MSIS: Multiple Sclerosis Impact Scale