UNIVERSITY of DELAWARE

Self Report and Outcome Measures

Tara Jo Manal PT, DPT, OCS, SCS
Director of Clinical Services and Residency Training
Associate Professor
Physical Therapy Department
Tarajo@udel.edu
302-831-8893

UNIVERSITY of DELAWARE

Darcy Reisman, PT, PhD
Assistant Professor
Biomechanics and Movement Science
Delaware Stroke Studies
Dreisman@udel.edu

Gregory Hicks, PT, PhD
Associate Professor
Director Delaware Spine Studies
ghicks@udel.edu

Self Report and Outcome Measures

J. Megan Sions PT, PhD, OCS
Assistant Professor
Delaware Spine Studies
megsions@udel.edu

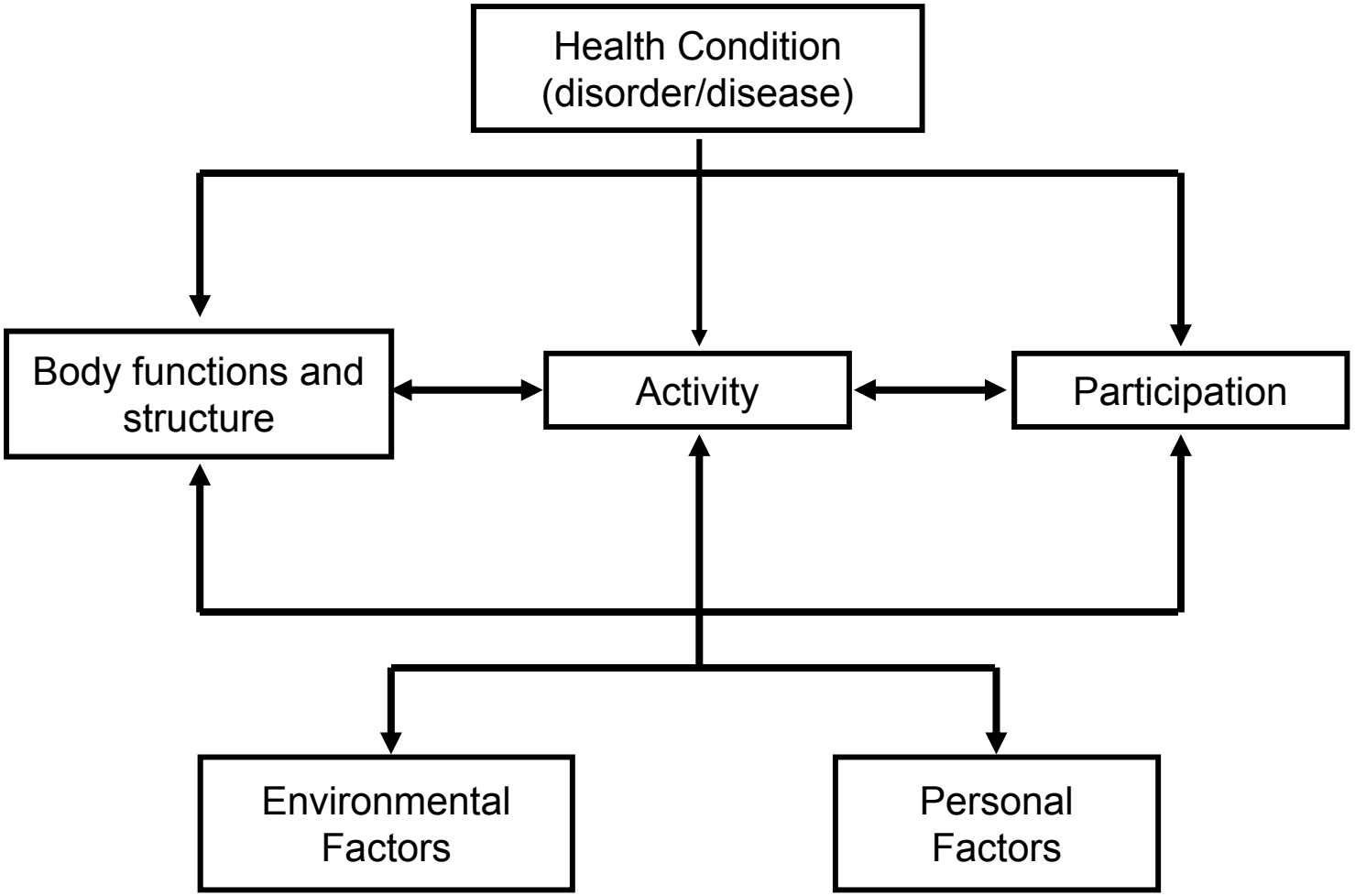
Tara Jo Manal PT, DPT, OCS, SCS
Director of Clinical Services and Residency Training
Associate Professor
Tarajo@udel.edu

Airelle Hunter Giordano PT, DPT, OCS, SCS
Associate Director of Sports and Orthopedics Clinical Services and Residency Director
Assistant Professor
aohunter@udel.edu

Peter Coyle DPT
PhD Student
Delaware Spine Studies
pcoyle@udel.edu

- ICF model and relationship to G-codes
- Measuring Function in Medicare population
  - Self Report, Performance Measures, Research issues with measures(change score, validity)
- Choose Good Measures
  - Examples
- G code implementation
  - When, how, where...Glitches faced
- Clinical Bottom Line

World Health Organization (WHO) International Classification of Functioning, Disability and Health (ICF) & the Relationship to G-Codes


Health Condition
(disorder/disease)
Body functions and
structure
Activity
Participation
Environmental
Factors
Personal
Factors

ICF

- **Health Condition**
  - Disorder, disease, injury, trauma , aging or congenital abnormality (ICD-9 and 10 codes)
- **Body function-** physiological and neuromuscular function
- **Body Structure-** anatomical parts of body
  - Impairments – problems in body function or structure that are permanent or temporary

ICF

- **Activity-** execution of a task or action
  - Activity limitation- difficulty executing activities
- **Participation-** involvement with life situations
  - Participation restriction- problems in involvement with life situations
- **Environmental Factors-** physical, social and attitudinal environment in which people live and conduct life

- Impairments of:
  - Mental functions
  - Sensory functions
  - Functions of the cardiovascular, and respiratory systems
  - Neuromusculoskeletal and movement related functions
    - Mobility of joint, muscle power, muscle tone, involuntary movements

- Impairments of:
  - Structure of the nervous system
  - Structure of the cardiovascular and respiratory system
  - Skin and related structures
  - Structure related to movement
    - Head and neck, shoulder, UE, pelvis, LE, trunk

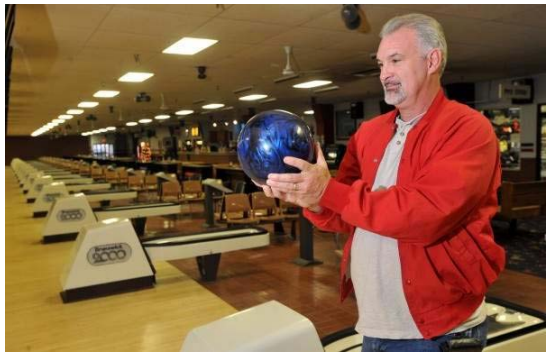
Use qualifiers to describe extent of impairment

- No impairment
- Mild impairment
- Moderate impairment
- Severe impairment
- Complete Impairment
- Not specified
- Not applicable

- Impairment in ability to perform a task or function
  - Communication
  - Mobility
  - Self-care

- Examples of activity limitations
  - Ms. G. is able to complete 100 feet during the 6 minute walk test
  - Mr. M requires moderate assistance of 1 to get out of bed
  - Mrs. P. is unable to climb stairs without UE assistance using 2 handrails

- Impairment in ability to participate in individual roles, work or community
  - Social engagement
  - Civic and community life
  - Work
  - Interpersonal relationships



- Products and technology
- Natural environment and human made changes (climate, light, sound, terrain)
- Support and relationships
- Legal and social structures
- Services, systems and policies

- Lifestyle
- Habits
- Social background
- Education
- Life events
- Race/ethnicity
- Sexual orientation

- G-codes - Functional Limitation Reporting
- Activity Limitations in the ICF model
- Which of the following would be considered an activity limitation?
  - Slow walking speed
  - Weak ankle muscles
  - Difficulty with sit-stand transfers
  - Inability to work

Measuring Function in Medicare Population

How should we measure outcomes?

- Performance-based outcomes
  - TUG, SCT, 6MW
- Perception-based questionnaires
  - KOS, WOMAC, Oswestry
- Clinical Metrics
  - Strength, Range of Motion, Symptoms (Stiffness, Pain, Instability)





Types of Outcome Measures

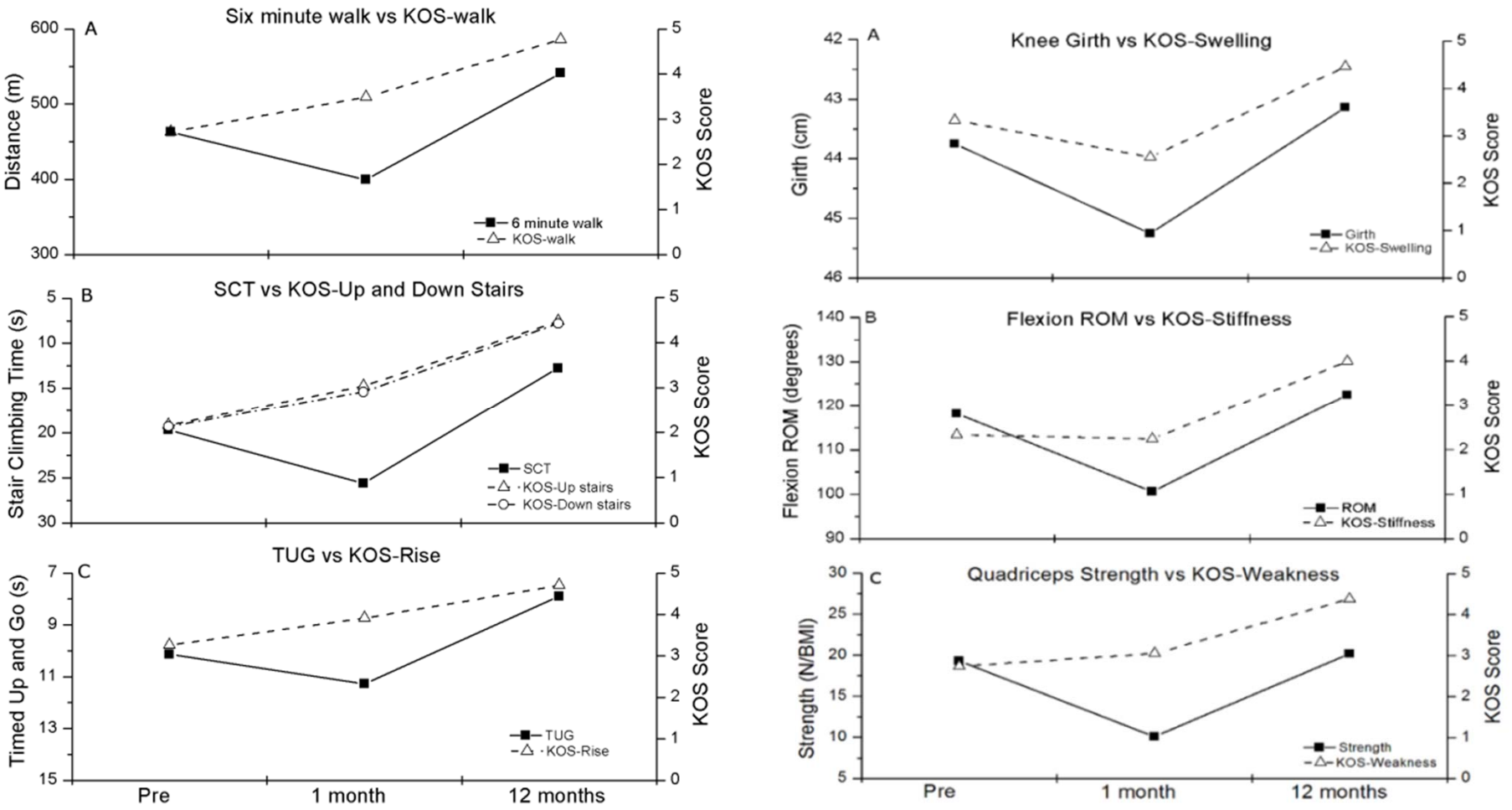
- Self-Report or Perception-Based Measures
  - How does the patient perceive their level of function?
    - More commonly used due to ease of administration
- Performance-Based Measures
  - What is the patient's actual level of function?

Outcome Measures

- Self-Report vs. Performance-Based Measures
  - Low to moderate agreement between measures
  - Salen showed a moderate correlation (r=.48) between patient's self-reported difficulty in performing tasks and observer assessment
  - After the patients actually performed the tasks, the correlation increased to r=.78
  - Tends to be a mismatch between how patients believe they function and how they actually function

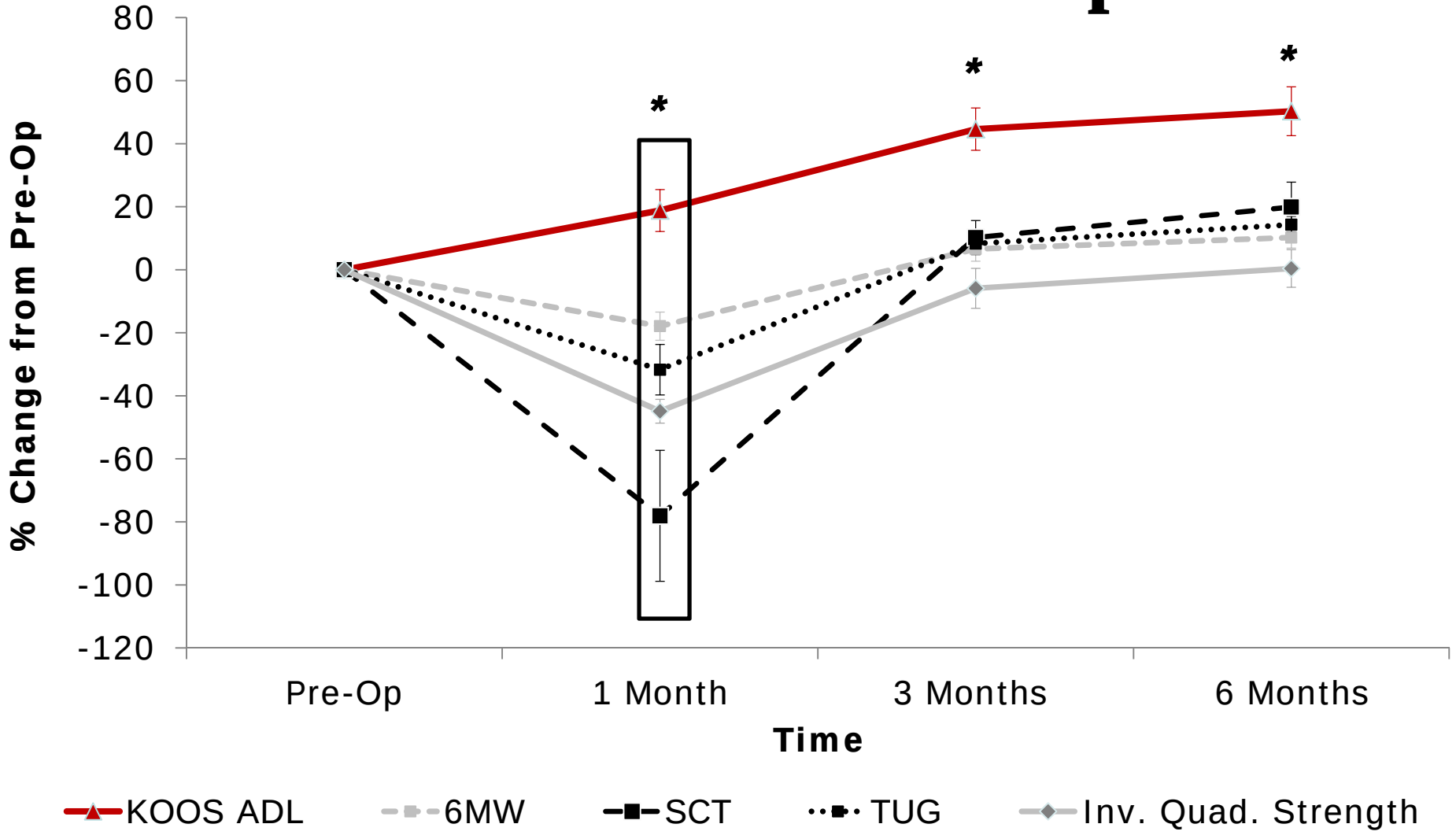
Therefore, consider supplementing self-report with performance-based measures

Performance does not equal Performance



Mizner R, Petterson S, Clements K, Zeni J, Irrgang J, Snyder-Mackler L. J Arthroplasty 2010

Performance vs self-report



Stevens-Lapsley *et al. 2011*

Subjective Report Versus Objective Measurement of Activities of Daily Living in Parkinson's Disease

Lisa M. Shulman, MD,[1]* Ingrid Pretzer-Aboff, MA,[1] Karen E. Anderson, MD,[1]
Rashida Stevenson, MD,[1] Christopher G. Vaughan, MA,[1] Ann L. Gruber-Baldini, PhD,[2]
Stephen G. Reich, MD,[1] and William J. Weiner, MD[1]

TABLE 3. *Percentage of subjects who overrate, are concordant, or underrate their disability compared with objective ratings and Kappa*

Task	Overrating of disability (%)	Concordant rating (%)	Underrating of disability (%)	Kappa
Dressing	11.5	53.6	34.8	0.318
Walking	23.3	50.7	26.0	0.280
Eating	15.8	40.8	43.4	0.190
Money	11.8	42.6	38.3	0.125
Medications	1.4	18.8	79.7	0.094
Average %	12.8	41.3	44.4	

Outcome Measures

- Factors for evaluation
  - Population
  - Reliability
    - Are measures consistent?
  - Validity
    - Does it measure what it's supposed to measure?
  - Responsiveness/Sensitivity to Change
    - Floor and Ceiling Effects
    - Ability to detect change
  - Minimum Detectable Change
    - Has real change occurred?
  - Minimum Clinically Important Difference
    - Smallest change that is important to patients

Floor and Ceiling Effects

- Floor Effect
  - Limitation of a measure in which the instrument does not register a further decrease in score for the lowest scoring individual
  - Floor; When the task is too hard and everyone performs at the worst possible level.
- Ceiling Effect
  - Limitation of a measure in which the instrument does not register a further increase in score for the highest scoring individual
  - Ceiling: When the task is too easy, and all patients perform at or near perfect, you have a ceiling effect

Responsiveness

- Does the outcome detect changes over time that matter to the patient?
- Ability of outcome to detect small, but clinically important differences.

Sensitivity to Change and Responsiveness of SPPB

- Secondary analysis of data from an exploratory 12-week, randomized trial comparing Exercise+NMES vs. traditional PT for chronic LBP
- Participants:
  - CLBP (>3 months)
  - Aged 60-85

	(n=62)
Age Mean (SD)	70.8 (6.7)
Sex N (% female)	35 (56.5%)
BMI Mean (SD)	29.2 (5.8)
Oswestry Mean (SD)	35.2 (11.9)

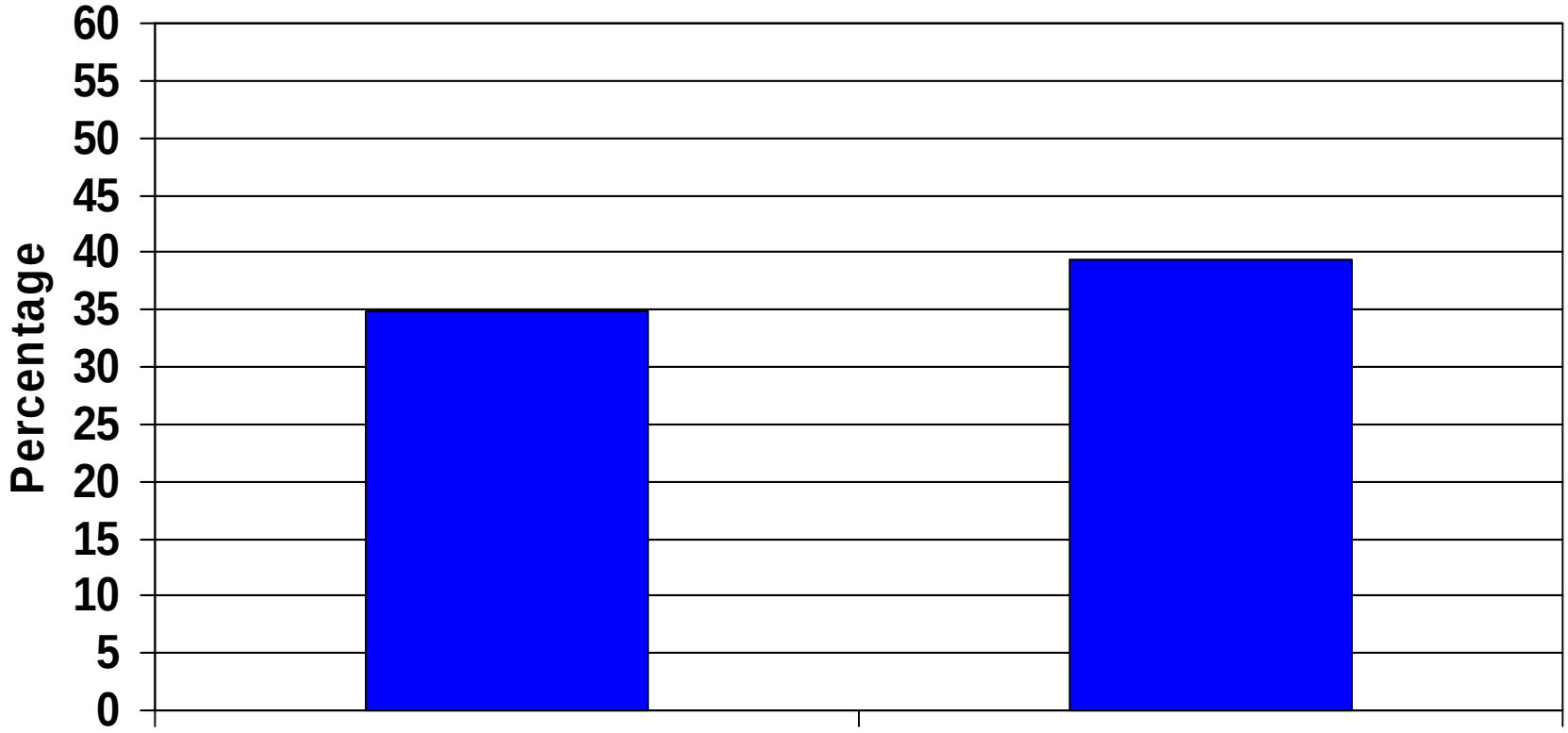
- Short Physical Performance Battery
  - Timed chair stands (5)
    - Score Range: 0-4
  - Timed standing balance
    - Side-by-Side, Semi-tandem, Tandem
    - Score Range: 0-4
  - Timed 6m walk
    - Score Range: 0-4

- Add components for summary score
  - Maximum: 12
  - 0=worst performance; 12=optimal

Ceiling Effect:

Short Physical Performance Battery

Score Range: 0-12



Baseline SPPB
N=66
Range: 3-12
Mean: 10.29

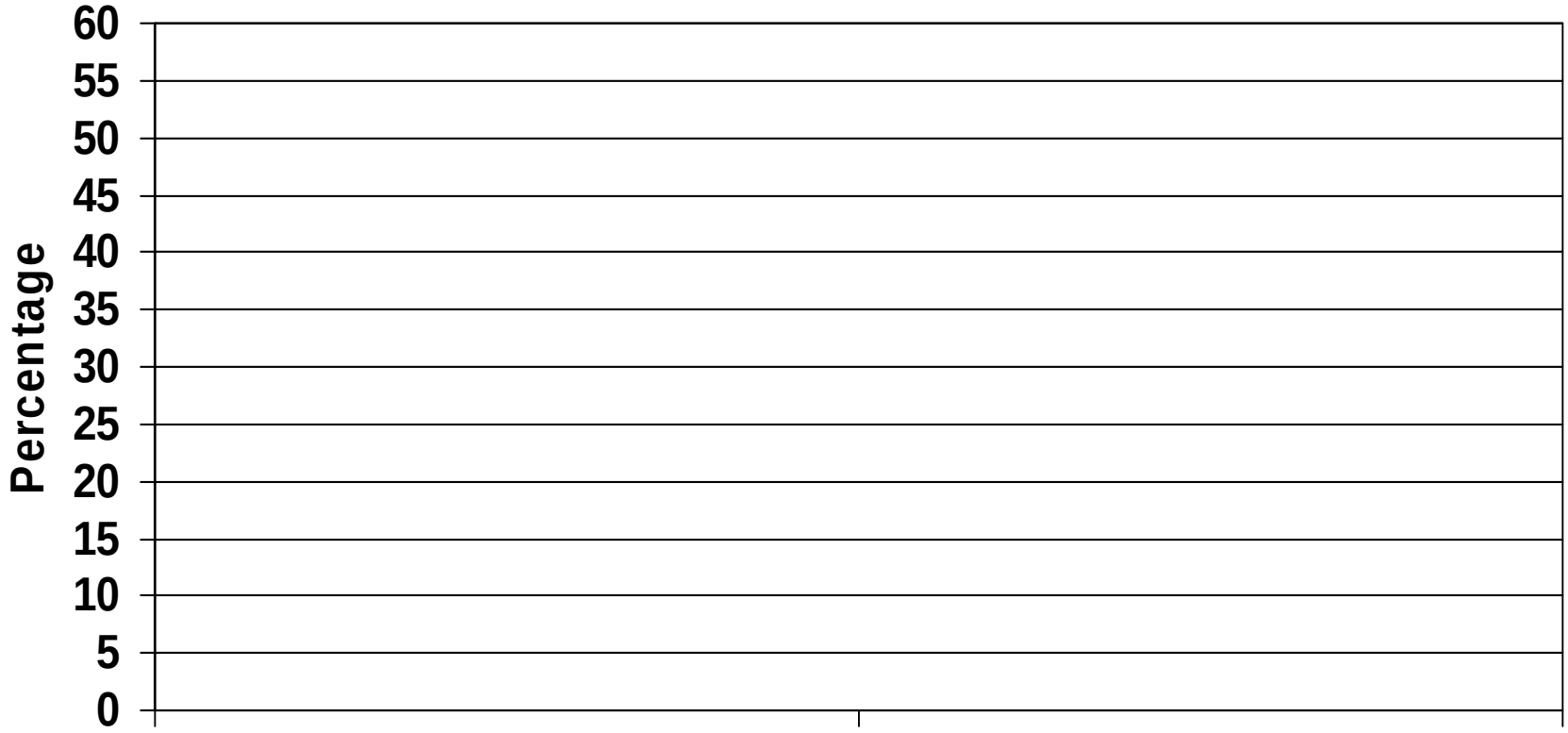
12 week SPPB
N=58
Range: 3-12
Mean: 10.59

- Health ABC Physical Performance Battery
  - Timed chair stands (5)
    - Maximum Performance: 1 chair stand/sec
  - Timed standing balance
    - Semi-tandem, Tandem, Single leg stance
    - Maximum Performance: 90 sec
  - Timed 6m walk
    - Maximum Performance: 2 meters/sec
  - Timed, narrow 6m walk
    - Maximum Performance: 2 meters/sec
  - Ratio scores from 0-1 calculated for each test
  - Ratio scores from each test are added for a 0-4 score

Ceiling Effect:

HABC Physical Performance Battery

Score Range: 0.0-4.0

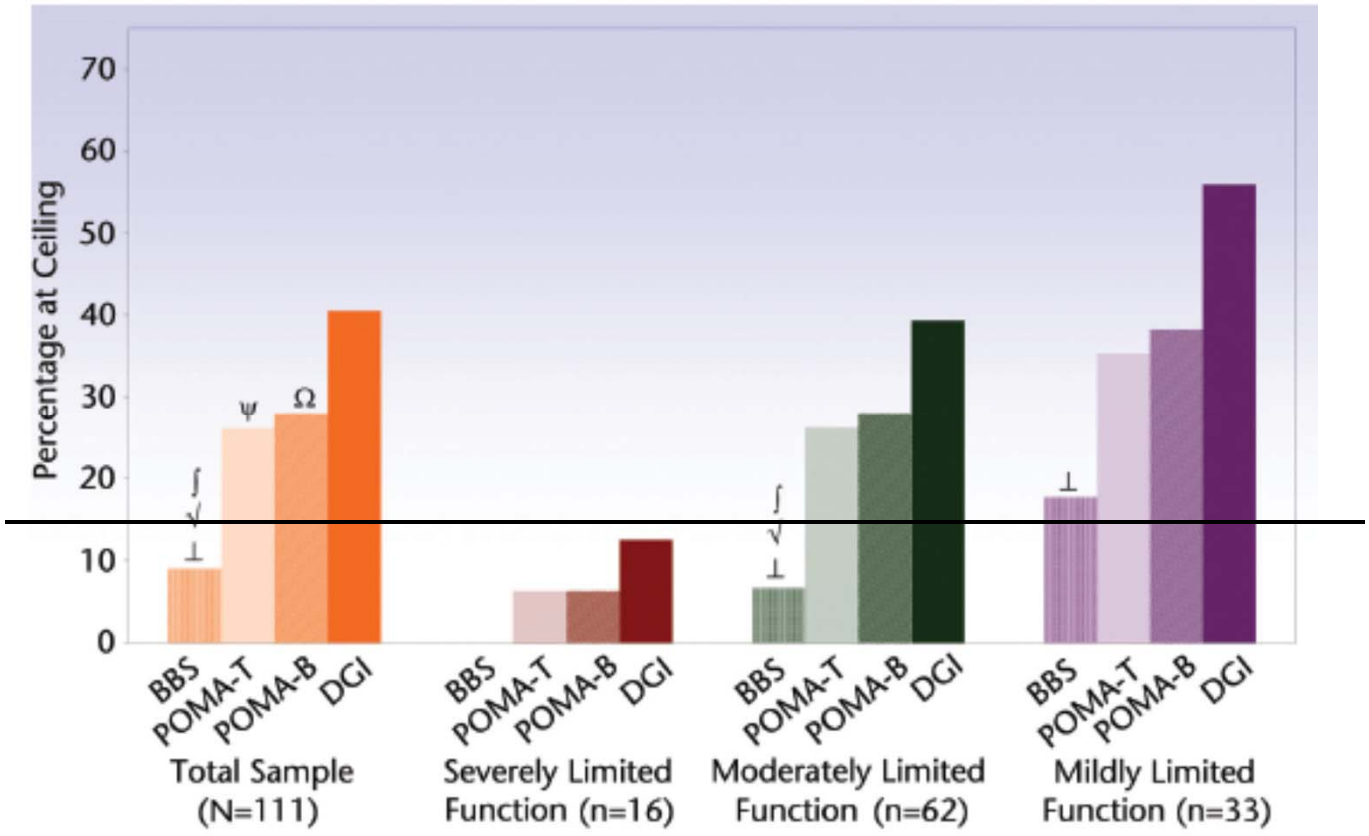


Baseline HABC PPB
N=36
Range: 1.27-3.02
Mean: 2.24

6 week HABC PPB
N=32
Range: 1.31-3.20
Mean: 2.43

Sensitivity to Change and Responsiveness of Four Balance Measures for Community-Dwelling Older Adults

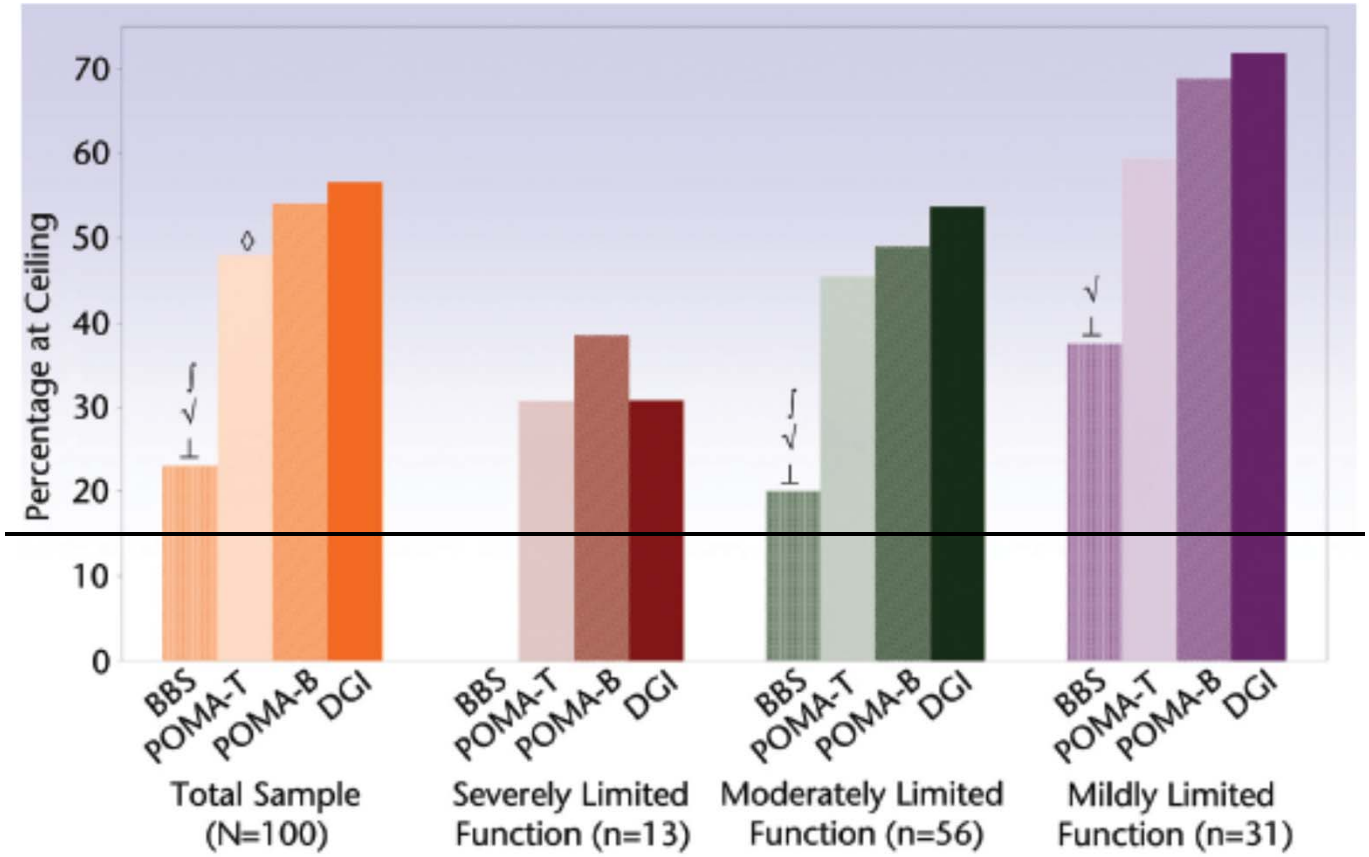
Poonam K. Pardasaney, Nancy K. Latham, Alan M. Jette, Robert C. Wagenaar, Pengsheng Ni, Mary D. Slavin, Jonathan F. Bean



UNIVERSITY *of* DELAWARE

Sensitivity to Change and Responsiveness of Four Balance Measures for Community-Dwelling Older Adults

Poonam K. Pardasaney, Nancy K. Latham, Alan M. Jette, Robert C. Wagenaar, Pengsheng Ni, Mary D. Slavin, Jonathan F. Bean



Sensitivity to Change and Responsiveness of Balance Measures for the Total Sample and by Subgroups of Lower and Higher Balance Scores[a]

Measure	n	ES (95% CI)				
BBS						
Total sample	100	0.29 (0.19, 0.44)				
Baseline BBS score <50/56	40	0.69 (0.49, 1.09)				
Baseline BBS score ≥50/56	60	0.23 (0.00, 0.52)				
POMA-T						
Total sample	100	0.27 (0.13, 0.41)				
Baseline POMA-T score <25/28	27	0.94 (0.54, 1.37)				
Baseline POMA-T score ≥25/28	73	0.21 (−0.15, 0.51)				
POMA-B						
Total sample	100	0.40 (0.22, 0.55)				
Baseline POMA-B score <14/16	33	1.60 (1.19, 2.42)				
Baseline POMA-B score ≥14/16	67	0.10 (−0.31, 0.49)				
DGI						
Total sample	100	0.27 (0.16, 0.41)				
Baseline DGI score <21/24	35	0.64 (0.34, 1.22)				
Baseline DGI score ≥21/24	65	0.26 (−0.02, 0.48)	0.24 (−0.02, 0.47)	0.3 (1.2)	0.40	0.60

Sensitivity to Change

- Ability of an instrument to measure change, regardless of whether the change is meaningful to the clinician or patient

Measured using:

Effect Size

- .20 reflects a small change
- .50 reflects a moderate change
- .80 reflects a large change

Sensitivity to Change and Responsiveness of Balance Measures for the Total Sample and by Subgroups of Lower and Higher Balance Scores[a]

Measure	n	ES (95% CI)	SRM (95% CI)	Mean Difference[b] (S_Δ)	MID ($0.3 \times S_b$)	MID ($0.5 \times S_b$)
BBS						
Total sample	100	0.29 (0.19, 0.44)	0.47 (0.27, 0.70)	1.4* (3.1)	1.65	2.50
Baseline BBS score <50/56	40	0.69 (0.49, 1.09)	0.85 (0.49, 1.36)	2.9* (3.5)	1.40	2.10
Baseline BBS score ≥50/56	60	0.23 (0.00, 0.52)	0.20 (−0.07, 0.55)	0.5 (2.3)	0.66	1.00
POMA-T						
Total sample	100	0.27 (0.13, 0.41)	0.40 (0.19, 0.59)	0.9* (2.1)	1.04	1.60
Baseline POMA-T score <25/28	27	0.94 (0.54, 1.37)	0.99 (0.51, 1.91)	2.6* (2.6)	0.90	1.40
Baseline POMA-T score ≥25/28	73	0.21 (−0.15, 0.51)	0.14 (−0.10, 0.39)	0.2 (1.5)	0.35	0.53
				0.8* (1.8)	0.67	1.00
				2.2* (1.9)	0.46	0.70
				0.07 (1.2)	0.24	0.37
				1.0* (2.2)	1.23	1.90
				2.3* (2.9)	1.16	1.80
				0.3 (1.2)	0.40	0.60

Responsiveness

- Ability of an instrument to measure a meaningful or important change from the perspective of the patient and/or clinician

Measured using:

Minimum Clinically Important Differences (MCID or MID)

- Do change scores exceed the MCID?

Differences

- Minimal Clinically Important Difference (MCID)
  - The smallest change in scores that patients perceive as important.
  - Similar to the concept of CLINICAL SIGNIFICANCE
- Minimal Detectable Change (MDC)
  - Commonly expressed as MDC90 or MDC95
  - An index of the reliability of an outcome measure
  - Similar to the concept of STATISTICAL SIGNIFICANCE
- MDC90: minimum change at 90% confidence
  - The MDC90 is the amount of change in scores required to be 90% confident that it is beyond measurement error.

Outcome Measures

- Oswestry Disability Questionnaire (ODQ)
  - Region specific measure of disability
  - Modified version contains 10 items
  - Each item scored 0 – 5
  - Items are summed and expressed as a percentage
  - Higher numbers indicate greater disability

ODQ Score	Disability Interpretation
0-20%	Minimal Disability
21-40%	Moderate Disability
41-60%	Severe Disability
61-80%	Crippled
81-100%	Bed-bound or Exaggerating Symptoms

Oswestry Questionnaire

Self Report of Performance Limitation

- Personal Hygiene
- Lifting
- Walking
- Sitting
- Standing
- Sleeping
- Social Activity
- Traveling
- Sex Life
- Pain Intensity

Scale: 0 - 5 Score for 10 items = 50

Multiply Score by 2/100% = Disability

Modified version: Sex life question is replaced by employment/homemaking ability

Oswestry

- Reliability
  - Established as good to excellent
- Validity
  - Established
- Responsiveness
  - Good
- Minimum Detectable Change
  - 10.5 points (Davidson, 2002)
- Minimum Clinically Important Difference
  - 6 points (Fritz, 2001)

Outcome Measures

- Roland-Morris Disability Questionnaire
  - Region specific measure of disability
  - Scale contains 24 items
    - "Because of my back pain, I lie down to rest more often"
  - Each item scored 0 or 1
  - Items are summed for final score
  - Higher numbers indicate greater disability
    - Score range: 0-24

Roland-Morris

- Reliability
  - Conflicting (ICC=.53-.86)
- Validity
  - Established
- Responsiveness
  - Unable to detect improvement in half the people
- Minimum Detectable Change
  - 9 points (Davidson, 2002)
- Minimum Clinically Important Difference
  - Not available

Which measure should I use?

	Oswestry	Roland-Morris
Reliability	+	-
Validity	+	+
Responsiveness	+	-
MDC	+	+
MCID	+	?

Calculator Danger

http://www.mediserve.com/resource/analysis/cbor-conversion/

- Functional Reach Test:
- **Parkinson's Disease**: (Dibble & Lange, 2006; *n* = 45; mean age =69.94 (11.28) years, mean Hoehn and Yahr score = 2.60 (.66) points)
- < 31.75 cm indicates fall risk (sensitivity of 0.86, specificity of 0.52 for risk of falling)
- **Frail Elderly Patients:** (Thomas et al, 2005; *n* = 30, fallers mean age = 79.7 (6.7) non-faller mean age = 81.4 (6.7) years)
- < 18.5 cm indicates fall risk (75% Sensitivity, 67% Specificity)
- **Community Dwelling Elderly:** (Weiner et al, 1992; n=45, mean age=78(8.4) years):
- FRT <7 inches (17.78cm):
  - Unable to leave neighborhood without help
  - Limited in mobility skills
  - Most restricted in ADLs

Parkinson's MDC: 9-11

- **Input the score between 15 and 25**
- Input 20 (half way between scores)
- Your Modifier Code is: **CK** (50% impaired)
- Input 25
- Your Modifier Code is: **CH** (0% impaired)

Calculator Danger- TUG

http://www.mediserve.com/resource/analysis/cbor-conversion/

Community-Dwelling Elderly People: (Steffen at al, 2002; *n* = 96; mean age = 73 (8) years; participants had a mean of 1.8 (1.2) medical diagnoses including high blood pressure (*n* = 35), arthritis (*n* = 34), low back pain (*n* = 29), cancer and heart disease (*n* = 14), thyroid disease (*n* = 10) and diabetes (*n* = 9))

TUG Normative Data for Community-Dwelling Adults:					
Age	Gender	*n*	Mean	SD	95% CI
60-69	Male	15	8	2	7-9
	Female	22	8	2	7-9
70-79	Male	14	9	3	7-11
	Female	22	9	2	8-10
80-89	Male	8	10	1	9-11
	Female	15	11	3	9-12

Parkinson's Disease: (Brusse et al, 2005; *n* = 25 community-dwelling older adults, 11 female, 14 male, with Parkinson's Disease; mean age = 76 (7) years; mean H & Y Stage Scale = 2)

Mean TUG Score		
	Mean (SD)	95% CI
TUG Score	14.8 (5.8)	12.3-17.3

Parkinson's MDC: 3.5-4.85

- **Input the score between 20 and 10**
- 12
- Your Modifier Code is: **CJ** (20% impaired)
- Put in 15
- Your Modifier Code is: **CK** (50% impaired)

Choose Good Measures

Self-Report Measures

Disabilities of the Arm, Shoulder & Hand

- Reliable, Valid, & Responsive (Beaton 2001)
- 30-items
- 10 min to complete
- Scoring: 1=no disability; 5=severe disability
  - [(Σ 30-items / # questions answered) -1] x 25
- Cannot be scored if >3 items not answered
- Work and sports/performing arts sub-scale optional
  - [(Σ 4-items / 4) – 1] x 25 for each section
- Range: 0-100% per sub-scale
- MCID 15% (Beaton 2001)
- MDC 12.7% (Beaton 2001)
- See handout

Michigan Hand Questionnaire (MHQ)

- Reliable, Valid, & Responsive (Chung 1998, Chung 2007, van de Ven-Stevens 2009, Waljee 2010)
- 10 min to complete
- 6 Scales, 37 items
- Lower Score = Less Affected by Injury
- MDC: unknown
- MCID: 13 points for function subscale (Shauver 2009)
- Brief 12-item MHQ version validated (Waljee 2011)
  - MCIDs: unknown
- See handout

Neck Disability Index (NDI)

- Reliable & Valid & Responsive (Vernon et al 1991; Young et al 2009)
- Higher scores = greater neck-related disability
- 10 items scored: 0-5
- Range 0-100% (0-50 points)
- MDC: 10-11% (Cleland et al 2006; Pool et al 2007; Young et al 2009)
- MCID: 14%
- See handout

Oswestry Disability Questionnaire (OSW)

- Reliable & Valid & Responsive
- Higher scores = greater LBP-related disability
- 10 Items scored: 0-5
- Range: 0-100%
- MDC: 10.5 points (Davidson et al 2002)
- MCID: 6 points (Fritz et al 2001)
- Modified Version: “Sex Life” question replaced by “Employment/Homemaking”

Lower Extremity Functional Scale (LEFS)

- 20 item scale of self-report conceived to assess LE functional status
- Includes activities like walking but also difficulty with work and hobbies
- Equivalent responsiveness to WOMAC phys func (Stratford 04)
- Less influenced by pain than the WOMAC (Stratford 04)

Lower Extremity Functional Scale (LEFS)

We are interested in knowing whether you are having any difficulty at all with the activities listed below because of your lower limb problem for which you are currently seeking attention. Please provide an answer for **each** activity.

Today, do you or would you have any difficulty at all with:

(Circle one number on each line)

Activities	Extreme Difficulty or Unable to Perform Activity	Quite a Bit of Difficulty	Moderate Difficulty	A Little Bit of Difficulty	No Difficulty
a. Any of your usual work, housework, or school activities.	0	1	2	3	4
b. Your usual hobbies, recreational or sporting activities.	0	1	2	3	4
c. Getting into or out of the bath.	0	1	2	3	4
d. Walking between rooms.	0	1	2	3	4
e. Putting on your shoes or socks.	0	1	2	3	4
f. Squatting.	0	1	2	3	4
g. Lifting an object, like a bag of groceries from the floor.	0	1	2	3	4
h. Performing light activities around your home.	0	1	2	3	4
i. Performing heavy activities around your home.	0	1	2	3	4
j. Getting into or out of a car.	0	1	2	3	4
k. Walking 2 blocks.	0	1	2	3	4
l. Walking a mile.	0	1	2	3	4
m. Going up or down 10 stairs (about 1 flight of stairs).	0	1	2	3	4
n. Standing for 1 hour.	0	1	2	3	4
o. Sitting for 1 hour.	0	1	2	3	4
p. Running on even ground.	0	1	2	3	4
q. Running on uneven ground.	0	1	2	3	4
r. Making sharp turns while running fast.	0	1	2	3	4
s. Hopping.	0	1	2	3	4
t. Rolling over in bed.	0	1	2	3	4
Column Totals:					

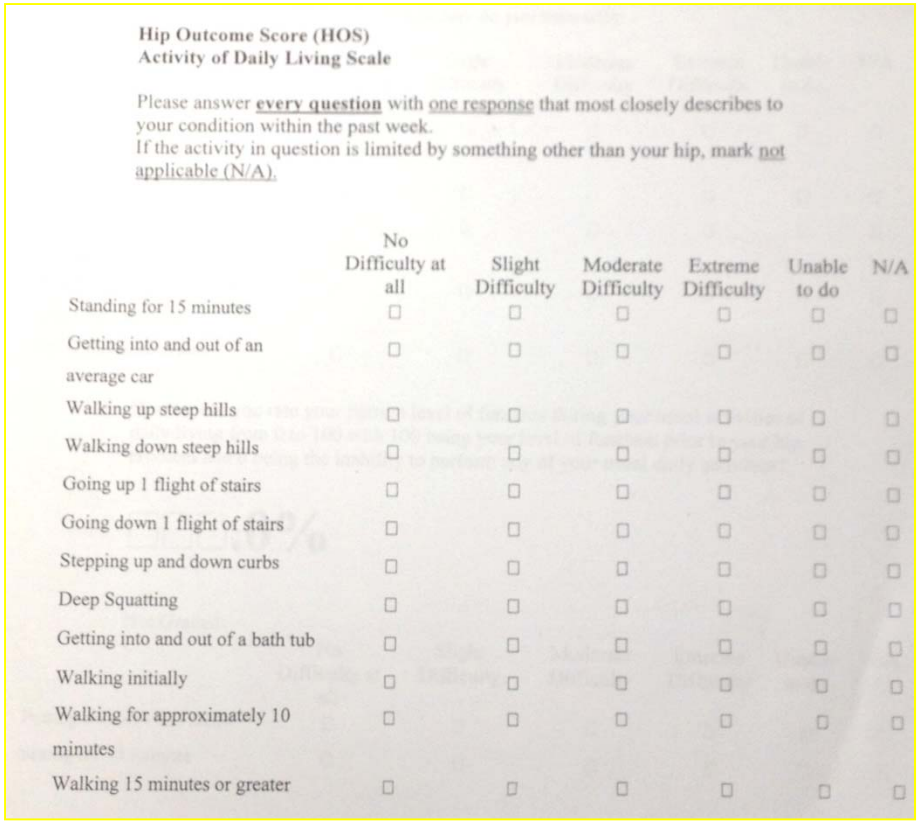
SCORE: _____/80

Hip Outcome Score (HOS)

- Self reported evaluative outcome instrument
- 19-item ADL & 9-item sports
- Mean age 41yo (range, 13-80) males and females
- Reliable and responsive when describing outcomes of hip arthorscopy for labral pathology, FAI, chondral lesions, or capsular laxity in respect to ADL's and Sport.
  - Martin et al., Arthroscopy 2008

HOS grading

- Rated 4-0 (4: no difficult, 0-Unable to do)
- **ADLs:** (Total Score/68)x100 (subtract 4 from 68 for every unanswered question)
  - *Do not grade the item related to sitting and putting on socks and shoes*
- **Sport**: (Total Score/36)x100 (subtract 4 from 36 for every unanswered question
- MDC: +/-3%
- MCID: ADLs: 9%, Sport 6%



Hip Outcome Score (HOS)
Activity of Daily Living Scale

Please answer **every question** with one response that most closely describes to your condition within the past week.
If the activity in question is limited by something other than your hip, mark not applicable (N/A).

	No Difficulty at all	Slight Difficulty	Moderate Difficulty	Extreme Difficulty	Unable to do	N/A
Standing for 15 minutes	☐	☐	☐	☐	☐	☐
Getting into and out of an average car	☐	☐	☐	☐	☐	☐
Walking up steep hills	☐	☐	☐	☐	☐	☐
Walking down steep hills	☐	☐	☐	☐	☐	☐
Going up 1 flight of stairs	☐	☐	☐	☐	☐	☐
Going down 1 flight of stairs	☐	☐	☐	☐	☐	☐
Stepping up and down curbs	☐	☐	☐	☐	☐	☐
Deep Squatting	☐	☐	☐	☐	☐	☐
Getting into and out of a bath tub	☐	☐	☐	☐	☐	☐
Walking initially	☐	☐	☐	☐	☐	☐
Walking for approximately 10 minutes	☐	☐	☐	☐	☐	☐
Walking 15 minutes or greater	☐	☐	☐	☐	☐	☐

Knee Outcome Survey (KOS)-Activities of Daily Living Scale (ADL's)

- 14-item questionnaire
- 6-point Likert Scale

  0 → Symptom prevents all daily activity/Unable to do the activity

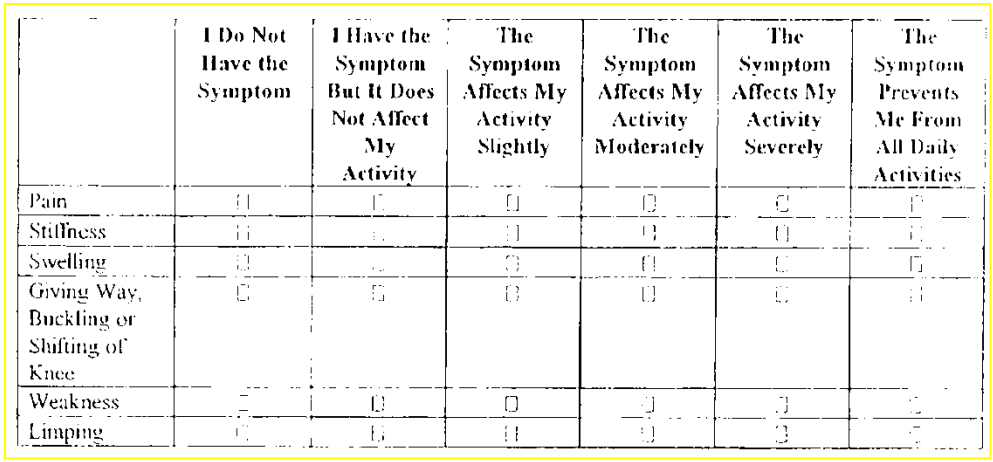
  5 → I do not have the symptom/Activity is not difficult

- Highest possible Score 75
  - 75/75 = 1.0 = no disability

- *Knee Outcome Survey–Activities of Daily Living Scale (KOS-ADLS)(Irrgang, 98)
  - 14 items, score at 0-100%, higher is better
  - Measures impact of impairment on ADL and difficulty of ADL task
  - Quick and easy to use, excellent reliability and consistency
    - Irrgang et al. JBJS, 1998

Knee Outcome Survey (KOS)-Activities of Daily Living Scale (ADL's)

- Assesses effects of knee conditions on ADL's such as:
  - Ambulation
  - Stair climbing
  - Sitting and squatting
  - Kneeling
    - Irrgang et al. JBJS, 1998



	I Do Not Have the Symptom	I Have the Symptom But It Does Not Affect My Activity	The Symptom Affects My Activity Slightly	The Symptom Affects My Activity Moderately	The Symptom Affects My Activity Severely	The Symptom Prevents Me From All Daily Activities
Pain						
Stiffness						
Swelling						
Giving Way, Buckling or Shifting of Knee						
Weakness						
Limping						

Foot and Ankle Ability Measure (FAAM)

- 21 item ADL
- 8 item sports subscale
- Validated in PT setting
- Graded 5 (no difficulty) to 0; total/84
- MCID
  - ADL = 8 points
  - Sports subscale = 9 points

Foot and Ankle Ability Measure (FAAM)

Please answer **every question** with one response that most closely describes to your condition within the past week.
If the activity in question is limited by something other than your foot or ankle mark not applicable (N/A).

	No difficulty	Slight difficulty	Moderate difficulty	Extreme difficulty	Unable to do	N/A
Standing	□	□	□	□	□	□
Walking on even ground	□	□	□	□	□	□
Walking on even ground without shoes	□	□	□	□	□	□
Walking up hills	□	□	□	□	□	□
Walking down hills	□	□	□	□	□	□
Going up stairs	□	□	□	□	□	□
Going down stairs	□	□	□	□	□	□
Walking on uneven ground	□	□	□	□	□	□
Stepping up and down curbs	□	□	□	□	□	□
Squatting	□	□	□	□	□	□
Coming up on your toes	□	□	□	□	□	□
Walking initially	□	□	□	□	□	□
Walking 5 minutes or less	□	□	□	□	□	□
Walking approximately 10 minutes	□	□	□	□	□	□
Walking 15 minutes or greater	□	□	□	□	□	□

Martin et al 2005

Dizziness Handicap Inventory (DHI)

- Reliable & Valid & Responsive (vestibular population)
- Higher scores indicate > handicap secondary to dizziness
  - > 10, examination by vestibular specialist is warranted
- Includes function, emotional, & physical component questions
- Items scored: 0 (never), 2 (sometimes), 4 (always)
- 25 items
- Range: 0-100
- Interpretation:
  - 16-34 points: mild handicap
  - 36-52 points: moderate handicap
  - 54+ points: severe handicap
- SEM: 6.2 points; MDC: 17.18 points; MCID: 18 points
- See handout

Patient-Specific Functional Scale (PSFS)

Patient-Specific Functional Scale (PSFS)

Please list at least 3 different activities that you are having difficulty with as a result of your injury/need for physical therapy. Today are there any activities you are unable to do or having difficulty with as a result of your injury/need for physical therapy?

As you list these activities, please rate the difficulty associated with these activities based on the following scale:

Patient-specific activity scoring scheme (Please choose one number per activity):

0 1 2 3 4 5 6 7 8 9 10

Unable to perform activity

Able to perform activity at the same level as before injury or problem

Activity 1: _____

_____

_____

Today's rating: _____

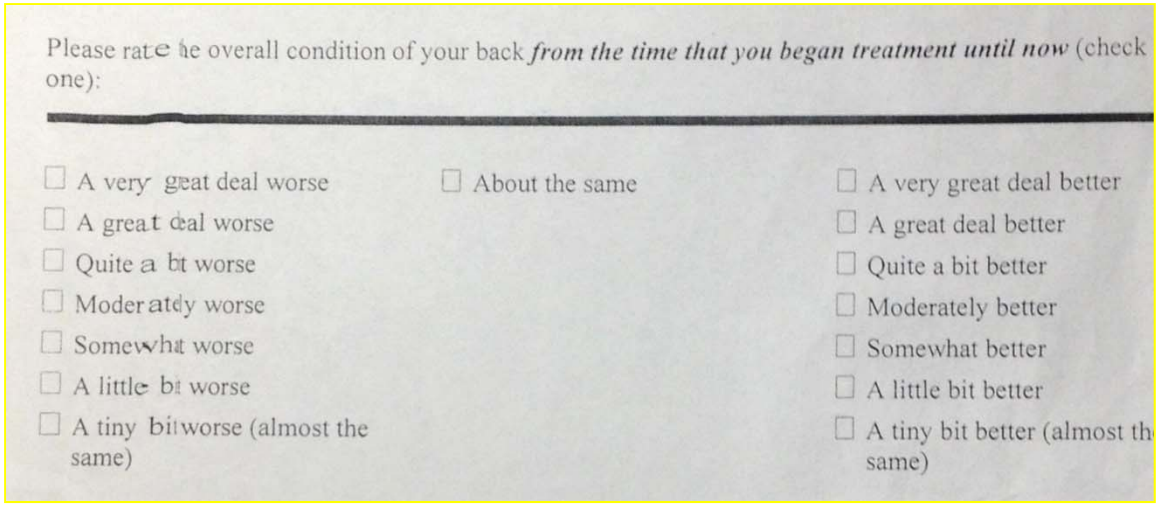
Patient-Specific Functional Scale (PSFS)

- Activities rated 0-10 (inability-level prior to injury)
- Reliable & Valid (Westaway et al 1998)
- Excellent responsiveness (Cleland et al 2006)
- MDC: 2.1 points (Cleland et al 2006)
- MCID: 2 points (Cleland et al 2006)
- Average of 3 scores= score
- See handout

Global Rating of Change (GROC)

(Jaeschke et al 1989)

- 15 point global rating scale
- -7 (a very great deal worse)
- +7 (a very great deal better)
- +4 to +5 = 'moderate' change in pt status
- +6 to +7 = 'large' change in pt status
  - See handout



Please rate the overall condition of your back *from the time that you began treatment until now* (check one):

☐ A very great deal worse	☐ About the same	☐ A very great deal better
☐ A great deal worse		☐ A great deal better
☐ Quite a bit worse		☐ Quite a bit better
☐ Moderately worse		☐ Moderately better
☐ Somewhat worse		☐ Somewhat better
☐ A little bit worse		☐ A little bit better
☐ A tiny bit worse (almost the same)		☐ A tiny bit better (almost the same)

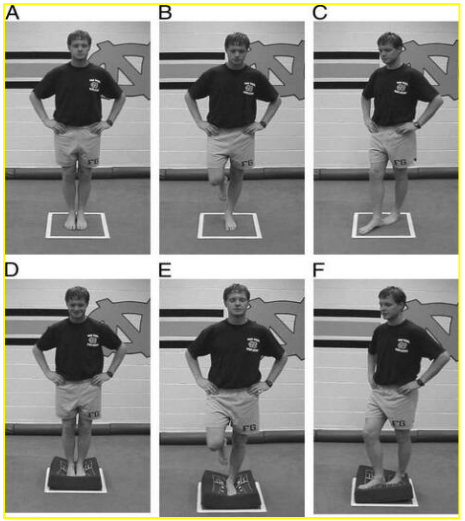
Physical Performance Measures

BESS Test

- Clinical evaluation of balance
- Reliability: good to moderate
- Valid
  - Concussion, functional ankle instability, external ankle bracing, fatigue, and age >50
  - Scores improve after neuromuscular training
    - Guskiewicz et al., J Athl Train 2001, Taskin et al., Isokinet Exerc Sci 2009, Iverson et al, Brain Inj 2008, Docherty et al., Clin J Sports Med 2006

20-39yo: 10.97+/-5.05
40-49yo: 11.88+/-5.40
50-54yo: 12.73+/-6.07
60-64yo: 17.20+/-7.83
65-69yo: 20.38+/-7.87

- 3 Stances
  - Double leg: hands on hips and feet together
  - Single leg: standing on non-dominant leg with hands on hips
  - Tandem: non-dominant foot behind dominant



BESS test

- Portable, cost-effective, and objective
- ~ 10 min
- 2 testing surfaces
  - (floor/ground & foam pad: 10x10x2.5 inches
- 6, 20 sec trials (stop watch)

	Firm Surface	Foam Surface
Double leg stance	10	10
Single leg stance	10	10
Tandem Stance	10	10
Surface Total	30	30

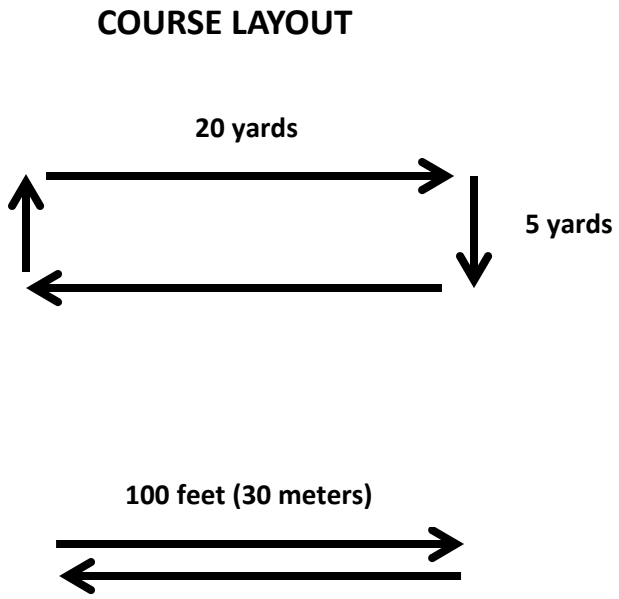
- Scoring and Errors:
  - moving the hands off of the iliac crests
  - opening the eyes
  - step stumble or fall
  - abduction or flexion of the hip beyond 30°
  - lifting the forefoot or heel off of the testing surface
  - remaining out of the proper testing position for greater than 5 seconds
  - The maximum total number of errors for any single condition is 10; Total: 60

6 Minute Walk Test (6MWT)

- Sub-maximal test of aerobic capacity/endurance & walking function
- Reliable, Valid, & Responsive (Rikli and Jones 1998; King et al 1999; Harada et al 1999; Bellet et al 2012)
- Populations tested: Geriatrics, Stroke, Parkinson's Disease, MS, SCI, Pulmonary Disease, Heart Failure, & Fibromyalgia
- See handout

6 Minute Walk Test (6MWT)

- "*This test screens your walking capacity*. *Cover as much ground as possible in 6 minutes. While I want you to walk as fast possible, I want you to do so safely. You may rest at any point and sit if absolutely necessary, but the clock will not stop so please start walking again as soon as you are able. To avoid limiting your speed, we will refrain from conversation. I will walk with you and give you time updates. Ready? Begin.*"
- 1 trial
- Assistive device allowed



6MWT: Procedures

Do	Do NOT
Walk behind the patient	Pace the patient (i.e. walk on their side)
Provide standardized encouragement every 30 seconds (i.e. "you're doing great" or "you're doing fine" or "keep going") and notify patient of time remaining every minute (i.e. "5 min remaining")	Converse with the patient other than to give standard encouragement, give time checkpoints, and to check symptom status.
Utilize a standard tone of voice	Use an excited tone as to "cheer" the patient on
Roll measurement wheel along the patient's path and stop where he/she stops.	Roll the measurement wheel too close to the patient in case they stop suddenly

6MWT Procedures

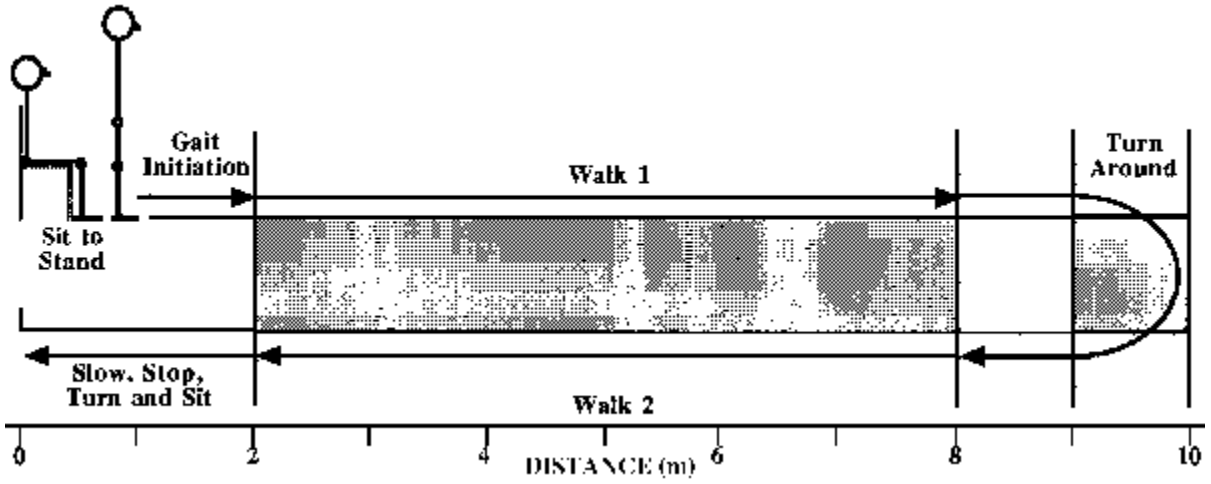
- **STOP the test if…**
  - C/o angina sxs (chest pain/tightness)
  - Certain Sxs:
    - Light-headedness/Confusion
    - Ataxia, staggering unsteadiness
    - Pallor
    - Cyanosis
    - Nausea
    - Marked dyspnea
    - Unusual fatigue
    - Signs of peripheral circulatory insufficiency
    - Claudication or other significant pain
    - Facial expressions signifying distress
  - Abnormal cardiac responses
    - Systolic BP drops > 10 mmHg
    - Systolic BP rises to >250 mmHg
    - Diastolic BP rises to > 120 mmHg
    - HR drops >15 bpm
      - If the pt was walking the last minutes of the test vs. resting.

6MWT: Normative Data

	NORMATIVE DATA: Average Distance Walked in Feet (± 1 SD) per Age Group for Older Adults						
Age	**60-64 yo**	**65-79 yo**	**70-74 yo**	**75-79 yo**	**80-84 yo**	**85-89 yo**	**90-94 yo**
Female	**1557-2061**	**1401-2007**	**1350-1938**	**1185-1869**	**1035-1737**	**891-1665**	**693-1449**
Male	**1746-2298**	**1584-2202**	**1530-2142**	**1287-2043**	**1212-1932**	**1005-1857**	**765-1653**

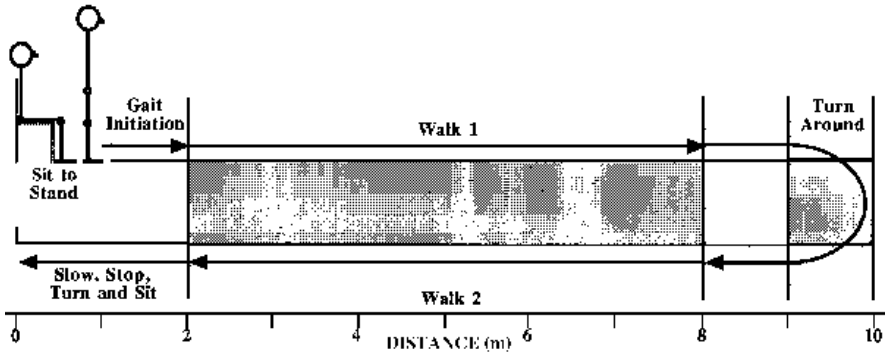
Timed Up and Go (TUG)

- Assesses mobility, balance, walking ability, & fall risk
- Reliable & Valid & Responsive
- Populations Tested: Geriatrics, Stroke, SCI, LE Amputations, MS, Parkinson's Disease
- Assistive device allowed
- See handout



Timed Up and Go (TUG)

- ""*My commands for this test are going to be 'ready, set, go'. When I say go, I want you to stand up from the chair. You may use the arms of the chair to stand up or sit down. Once you are up, I want you to walk to the line on the floor, turn around, walk back to the chair, and sit down. I will stop the clock when you are seated. You will complete one practice run and three that are counted."*
- 1 practice
- Average of 3 trials (Shumway-Cook et al 2000)
- Assistive device allowed



TUG: Normative Data

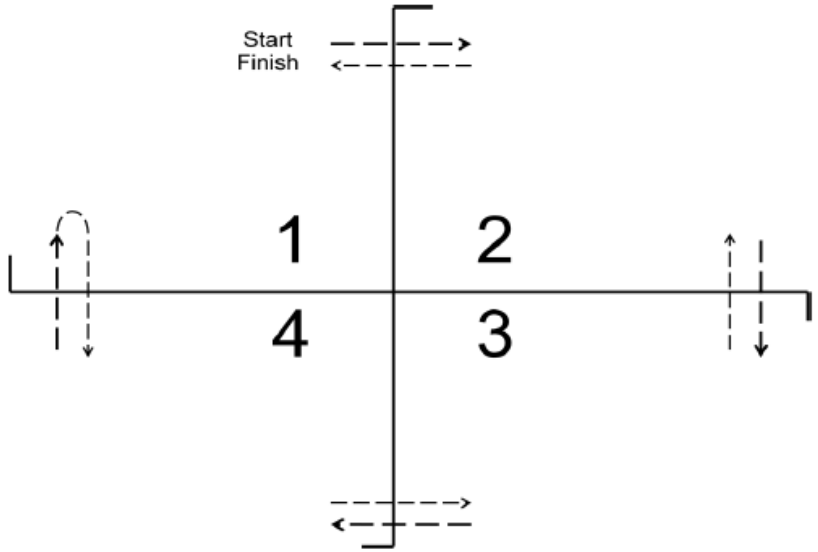
Age in years	Mean (in seconds)
60-69	7.9 +/- 0.9
70-79	7.7 +/- 2.3
80-89	No device: 11.0 +/- 2.2 With device: 19.9 +/- 6.4
90-101	No device: 14.7 +/- 7.9 With device: 19.9 +/- 2.5

Timed Up and Go (TUG): Interpretation

- Categories
  - ≤ 10 sec = normal
  - ≤ 20 sec = good mobility, can go out alone, mobile without gait aid
  - ≤ 30 sec = problems, cannot go outside alone, requires gait aid
- At risk for falls:
  - Community-dwelling older adults: > 13.5 sec (Shumway-Cook et al 2000)
  - Older adult with Stroke: > 14 sec (Andersson et al 2006)
  - LE Amputations: > 19 sec (Dite et al 2007)
  - Parkinson's Disease: > 7.95 sec (Dibble et al 2006)
- MDC: 2.9-11 seconds
- MCID: unknown

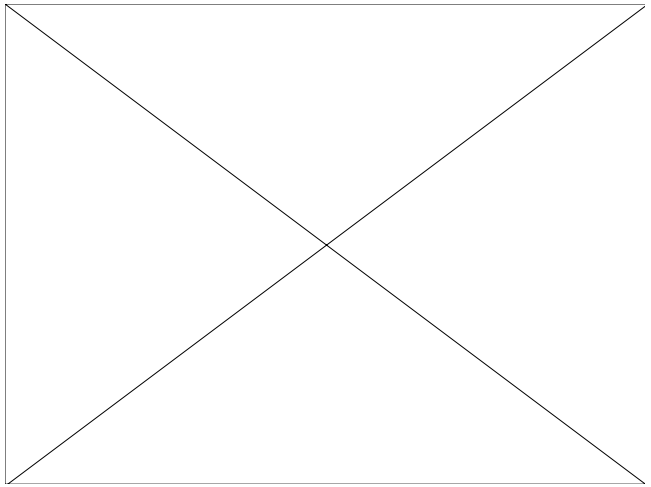
Four Square Step Test (FSST)

- Assesses dynamic standing balance & LE motor control
- Reliable & Valid (Dite et al, 2002; Whitney et al 2007; Blennerhassett & Jayalath, 2008)
- Populations tested: geriatrics, stroke, vestibular d/o, & transtibial amputations
- See handout



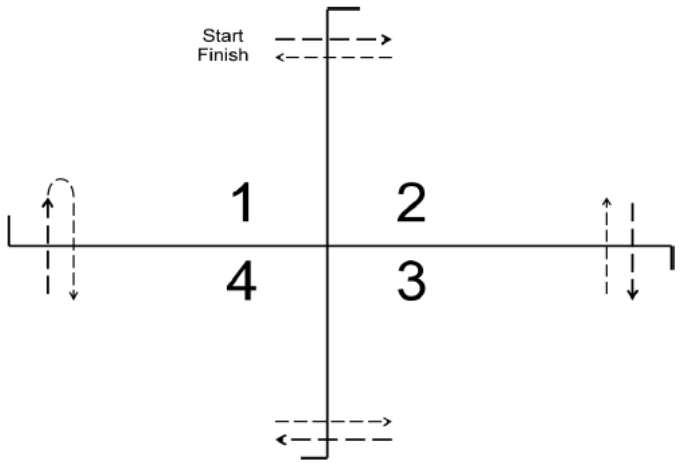
Four Square Step Test (FSST)

- *"Try to complete the sequence as fast as possible without touching the sticks. Both feet must make contact with the floor in each square. If possible, face forward during the entire sequence."*
- 1 practice
- 2 trials
  - Take "best" score
- Assistive device: Cane allowed prn
- Stop test if:
  - Fails to complete sequence correctly
  - Loses balance
  - Touches cane



Four Square Step Test (FSST)

- Normative Data (Dite & Temple, 2002)
  - Geriatrics
    - Multiple-Fallers: 32.6+/-10.1 sec
    - Non-Multiple Fallers: 17.6+/-8.3 sec
- Interpretation: at risk for falls/multiple falls
  - Geriatrics: >15 sec
  - Acute Stroke: >15 sec or failed
  - Vestibular d/o: >12 sec
  - Transtibial Amputation: >24 sec
- MDC/MCID: unknown



10 Meter Walk Test

- Assesses walking speed
- Reliable, Valid, & Responsive
- Populations Tested: Geriatrics, Stroke, SCI, TBI
- See handout

10 Meter Walk Test

(Bohannon et al 1996;1997; Wolf et al 1999)

- Self-selected speed
  - *"I will say ready, set, go. When I say go, walk at your normal comfortable speed until I say stop."*
- Fast-walking speed
  - *"I will say ready, set, go. When I say go, walk as fast as you safely can until I say stop."*
- 3 trials/speed; get average speed
- Divide 6 meters by average speed for _____m/s
- Assistive device allowed

10 Meter Walk Test: Normative Data

(Bohannon et al 1997)

Gait Speed (m/sec)	MEN		WOMEN	
Decade-of-Life	self-selected	fast	self-selected	fast
20s	1.39	2.53	1.41	2.47
30s	1.46	2.45	1.42	2.34
40s	1.46	2.46	1.39	2.12
50s	1.39	2.07	1.40	2.01
60s	1.36	1.93	1.30	1.77
70s	1.33	2.08	1.27	1.74

10 Meter Walk Test: Interpretation

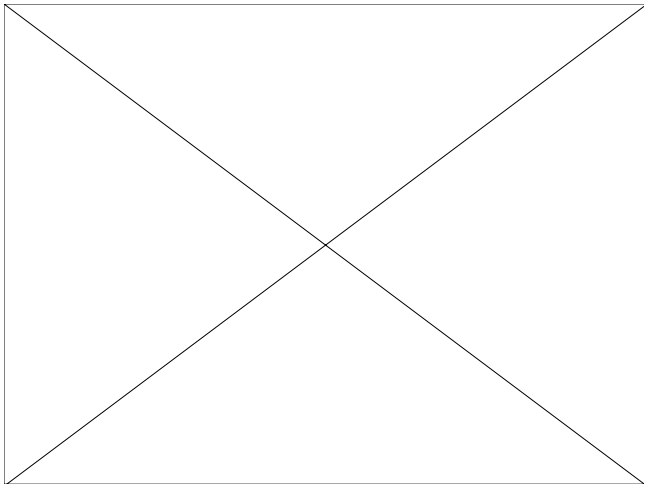
- Interpretation: Stroke (Bowden et al 2008)
  - <0.4 m/s: more likely to be household ambulators
  - 0.4-0.8 m/s: limited community ambulators
  - >0.8 m/s: community ambulators
- MDC
  - Self-selected speed: .10-.18 m/sec
  - Fast speed: .25 m/sec
- MCID (Perera et al 2006; Tilson et al 2010)
  - .10-1.4 m/sec

5 Times Sit-to-Stand Test (5xSST)

- Assesses functional LE muscle strength, transitional movements, balance, & fall risk
- Reliable, Valid, & Responsive
- Populations tested: Geriatrics, Orthopedic Conditions (LBP, Knee OA, TKA), Stroke, Peripheral Arterial Disease, MS, Parkinson's Disease, Vestibular Disorders
- See handout

5 Times Sit-to-Stand Test (5xSST)

- "Please stand up straight as quickly as you can 5 times, without stopping in between. Keep your arms folded across your chest. I'll be timing you with a stopwatch. Ready, begin."
- 1 practice
- 1 recorded trial
- Assistive device not allowed



5xSST: Interpretation

- Geriatrics
  - Further Assessment of Fall Risk: ≥ 12 sec (Tiedemann et al 2008)
  - Recurrent Falls: > 15 sec (Buatois et al 2010)
- Vestibular Disorders (Buatois et al 2008)
  - Fall Risk: > 15 sec
- Parkinson's Disease (Duncan et al 2011)
  - Fall Risk: > 16 sec
- Normative Data (Bohannon et al 2006)
- MDC: 3.6-4.2 sec
- MCID: 2.3 sec

Age Bracket	Time (sec)
60-69 y/o	11.4
70-79 y/o	12.6
80-89 y/o	14.8

Short Physical Performance Battery

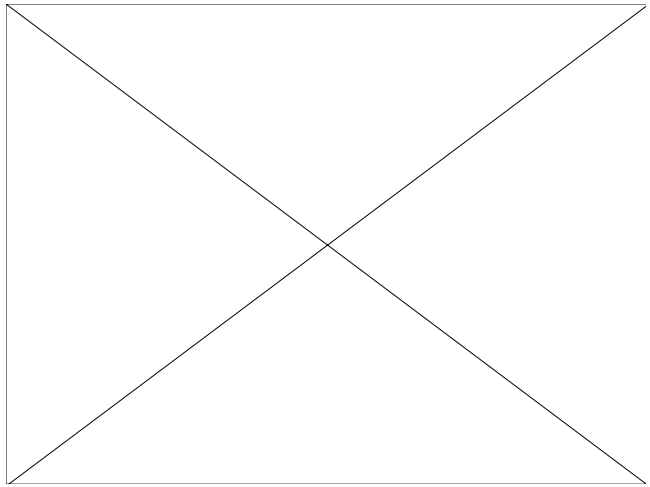
- Gait Speed (3-4 meters)*
- 5 Times Sit-to-Stand*
- Balance Tests
  - Side-by-side
  - Semi-tandem
  - Tandem
- See handout

Berg Balance Test

- Designed to test static and dynamic balance
- Reliable, Valid, Responsive, & Falls Screen (Prognosis) (Berg 1992, Berg 1995, Bogle 1996, Liston 1996, Shumway-Cook 1997, Mao 2002, Franchignoni 2005, Holbein 2005, Chou 2006 Conradsson 2007, Steffen 2008, Scalzo 2009, Wirz 2010)
- Community-dwelling older adults:
  - History of falls and BBT ≤51 or no history and BBT ≤42 = fall risk; ≤40 = approximately 100% fall risk (Shumway-Cook 1997)
- 14 items, scored 0 (unable); 4 (able to do independently)
- SEM various populations = 1.49-2.93 (Liston 1996, Stevensen 2001, Newstead 2005 Hiengkaew 2012, Flanbjer 2012)
- MDC various populations: 2.5 – 8.0 (Liston 1996, Stevensen 2001, Conradsson 2007, Steffen 2008, Donoghue 2009, Hiengkaew 2012, Flanbjer 2012)
- MCID: unknown
- 15-20 minutes to complete
- See form & handout (details & normative data)

Nine Hole Peg Test

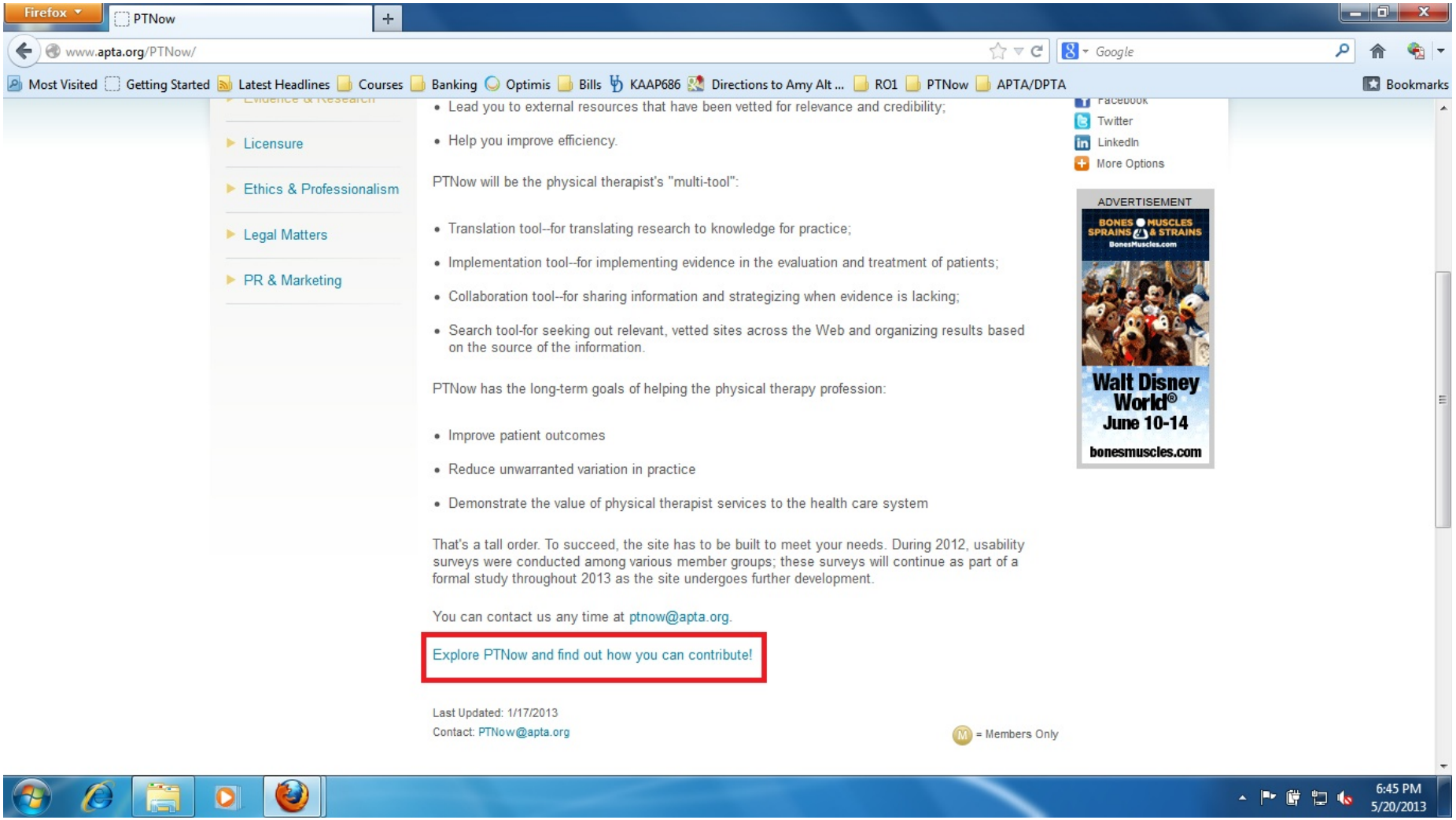
- Assesses hand dexterity
- Reliable, Valid (acute and chronic CVA), & Responsive (Keh-chung 2010, Beebe 2010)
- <5 minutes to complete
- Pt takes pegs from container, places them into holes, removes pegs, put back into container as quickly as possible
    - Container or dish holding pegs towards testing hand
    - Allowed to stabilize board with non-test hand
    - Time (sec) = score
- Acute & Chronic Stroke MDC: 32.8 sec (Chen 2009)
- Floor effects early stroke? (Sunderland 1989)
- See handout



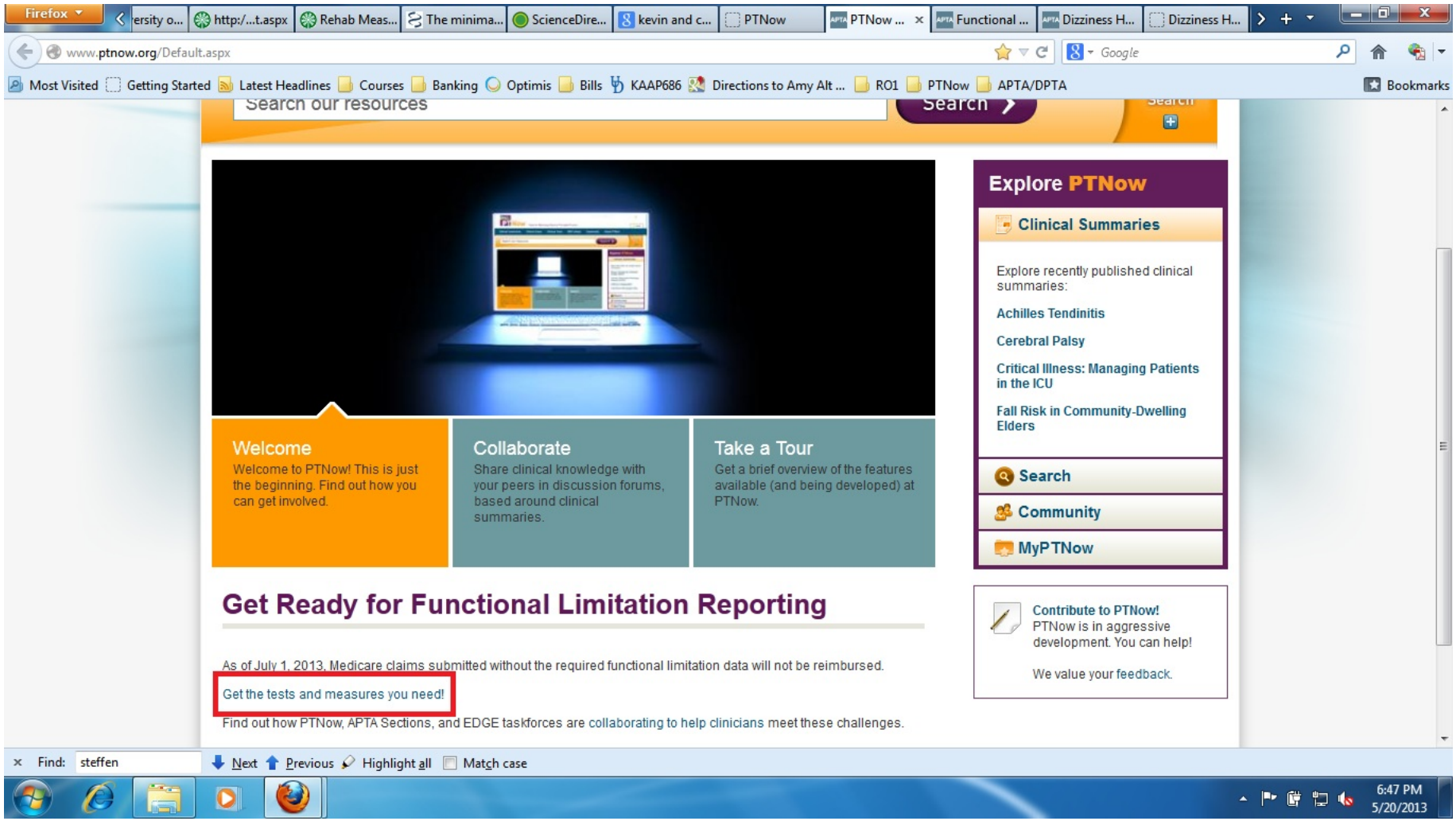
PTNow: Reference for Tests & Measures

Web Surf to PTNow

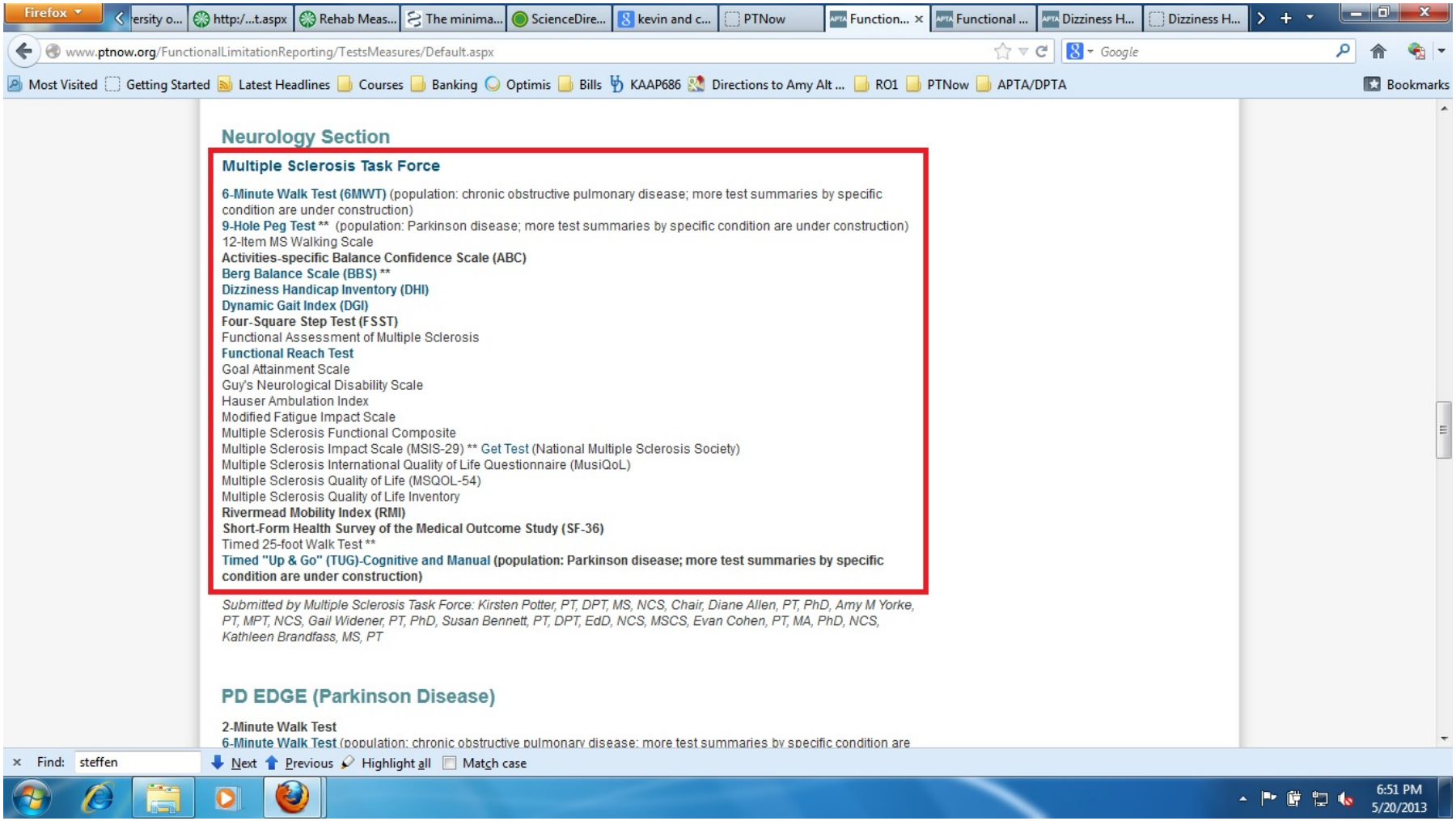
Web Surf to PTNow



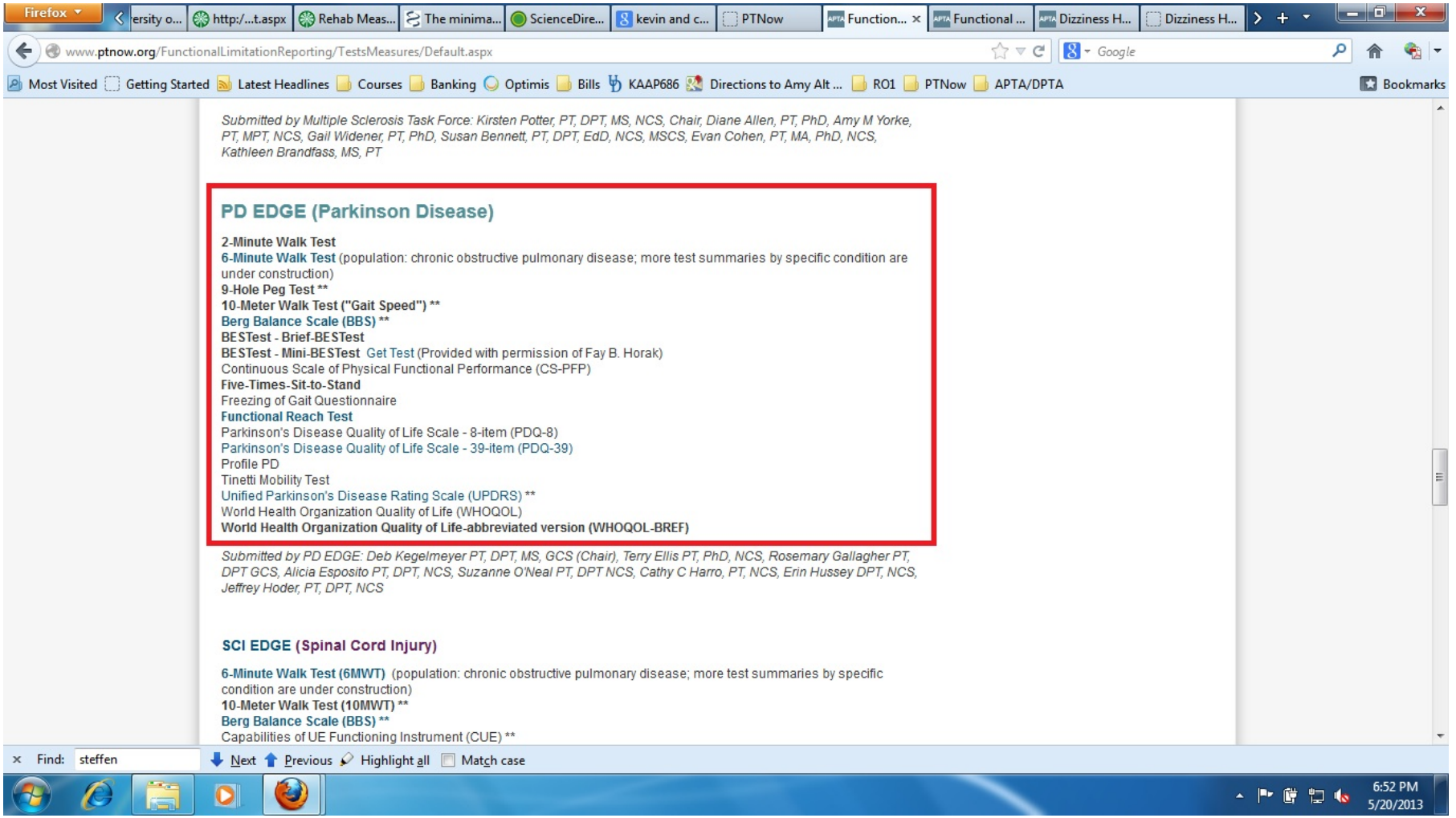
PTNow Homepage



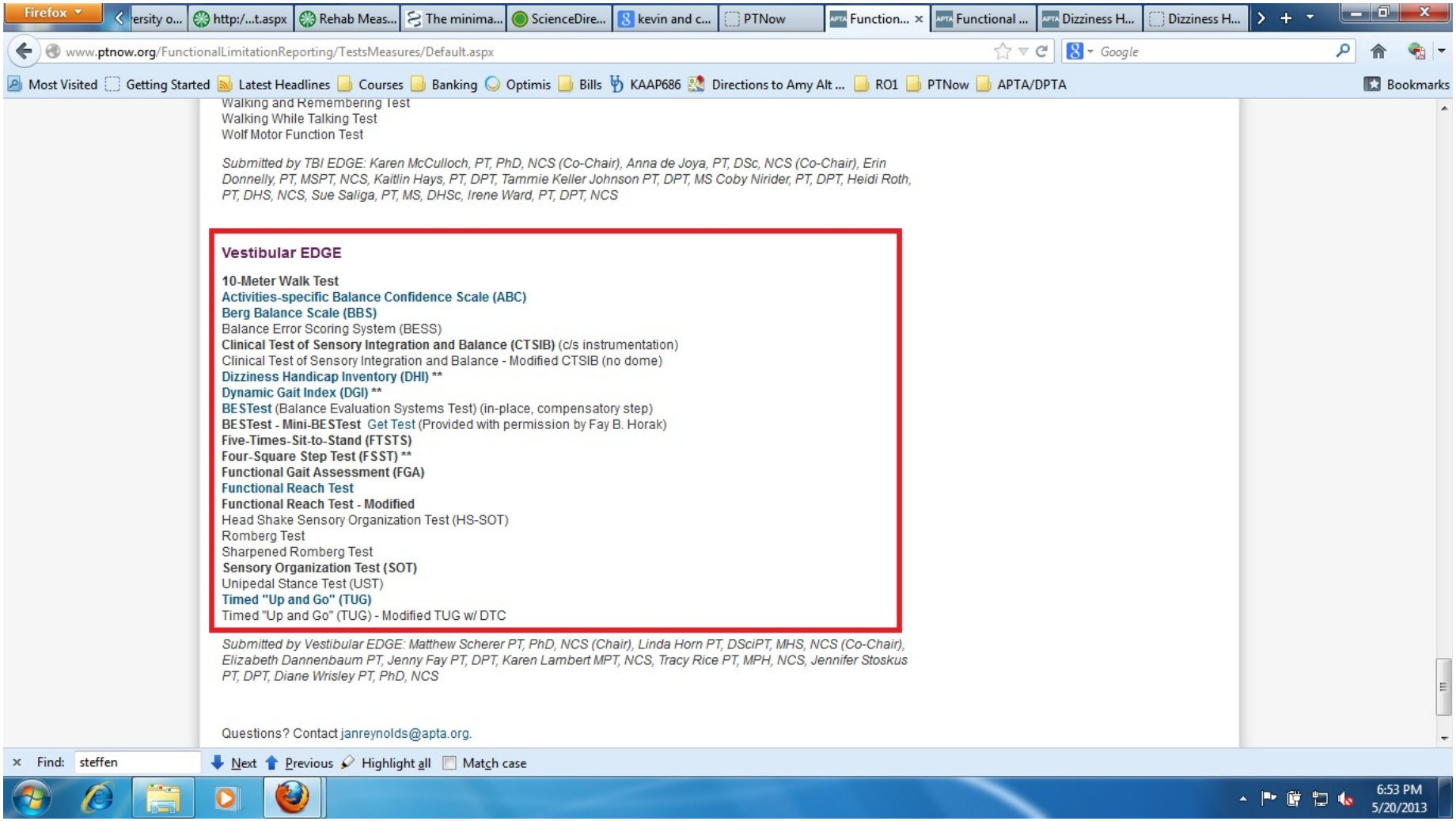
Special Populations: Multiple Sclerosis



Special Populations: Parkinson Disease



Special Populations: Vestibular



Walking and Remembering Test
Walking While Talking Test
Wolf Motor Function Test

Submitted by TBI EDGE: Karen McCulloch, PT, PhD, NCS (Co-Chair), Anna de Joya, PT, DSc, NCS (Co-Chair), Erin Donnelly, PT, MSPT, NCS, Kaitlin Hays, PT, DPT, Tammie Keller Johnson PT, DPT, MS Coby Nirider, PT, DPT, Heidi Roth, PT, DHS, NCS, Sue Saliga, PT, MS, DHSc, Irene Ward, PT, DPT, NCS

Vestibular EDGE

10-Meter Walk Test
Activities-specific Balance Confidence Scale (ABC)
Berg Balance Scale (BBS)
Balance Error Scoring System (BESS)
Clinical Test of Sensory Integration and Balance (CTSIB) (c/s instrumentation)
Clinical Test of Sensory Integration and Balance - Modified CTSIB (no dome)
Dizziness Handicap Inventory (DHI) **
Dynamic Gait Index (DGI) **
BESTest (Balance Evaluation Systems Test) (in-place, compensatory step)
BESTest - Mini-BESTest Get Test (Provided with permission by Fay B. Horak)
Five-Times-Sit-to-Stand (FTSTS)
Four-Square Step Test (FSST) **
Functional Gait Assessment (FGA)
Functional Reach Test
Functional Reach Test - Modified
Head Shake Sensory Organization Test (HS-SOT)
Romberg Test
Sharpened Romberg Test
Sensory Organization Test (SOT)
Unipedal Stance Test (UST)
Timed "Up and Go" (TUG)
Timed "Up and Go" (TUG) - Modified TUG w/ DTC

Submitted by Vestibular EDGE: Matthew Scherer PT, PhD, NCS (Chair), Linda Horn PT, DSciPT, MHS, NCS (Co-Chair), Elizabeth Dannenbaum PT, Jenny Fay PT, DPT, Karen Lambert MPT, NCS, Tracy Rice PT, MPH, NCS, Jennifer Stoskus PT, DPT, Diane Wrisley PT, PhD, NCS

Questions? Contact janreynolds@apta.org.

And Many More!

- Acute Care
- Cardiovascular and Pulmonary
- Hand
- Women's Health
- Spinal Cord Injury
- Stroke
- Traumatic Brain Injury

G Code Implementation

What goes on the Bill

- G-code
  - (2 status events- current and projected or projected and discharge)
- Functional severity modifier,
- Therapy modifier indicating the related discipline/POC
  - GP for Physical Therapy
  - GO for Occupational Therapy
  - GN for Speech Language Pathology
    - No required order for the modifiers
    - No KX modifier
- Date of the related therapy service
- Nominal charge, e.g., a penny, for institutional claims submitted to the fiscal intermediaries (FIs) and A/Medicare Administrative Contractors (MACs). For professional claims, a zero charge is acceptable for the service line. If provider billing software requires an amount for professional claims, a nominal charge, e.g., a penny, may be included.

Acknowledge Submission

- Medicare will return a Claim Adjustment Reason Code 246
- (This non-payable code is for required reporting only.) and a Group Code of CO (Contractual Obligation) assigning financial liability to the provider.
- In addition, beneficiaries will be informed via Medicare Summary Notice 36.7 that they are not responsible for any charge amount associated with one of these G-codes.

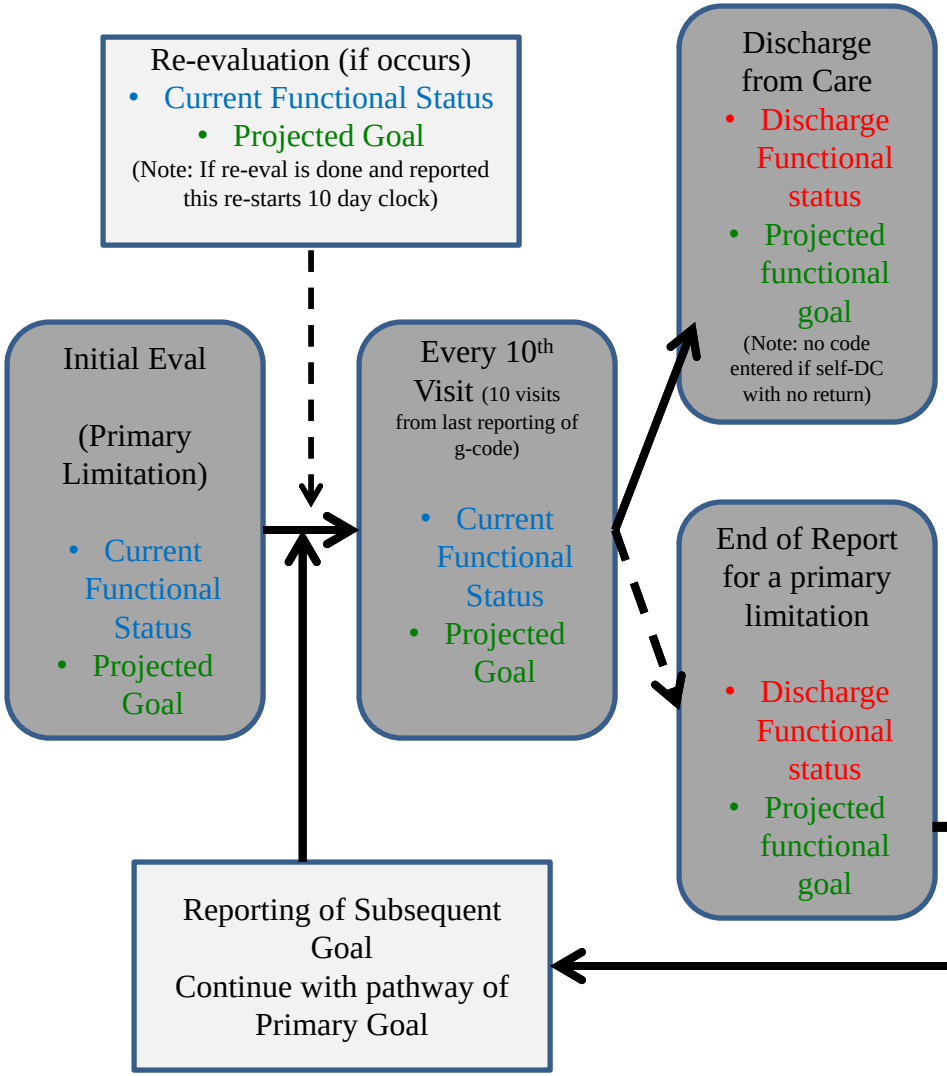
Submission Error Codes

- New remittance advice codes 4/1-6/30/13
- N565: missing severity modifier (CH-CN)
- N566: missing G-code at eval or re-eval (92506, 92597, 92607, 92608, 92610, 92611, 92612, 92614, 92616, 96105, 96125,97001, 97002, 97003, 97004)

- Therapist chooses the primary limitation; if there is more than one limitation:
  - Most clinically relevant to a successful outcome for the beneficiary;
  - The one that would yield the quickest and/or greatest functional progress; OR
  - The one that is the greatest priority for the beneficiary

G- Code	Current Status	Projected Goal	Discharge Status- End Reporting
Mobility Walking and moving Around	G8978	G8979	G8980
Changing and Managing Body Position	G8981	G8982	G8983
Carrying, Moving & Handling Objects	G8984	G8985	G8986
Self Care	G8987	G8988	G8989
Other PT/OT Primary Functional Limitations	G8990	G8991	G8992
Other PT/OT Subsequent Functional Limitations	G8993	G8994	G8995

UNIVERSITY of DELAWARE



G- Code	Current Status	Projected Goal	Discharge Status-End Reporting
Mobility Walking and moving Around	G8978	G8979	G8980
Changing and Managing Body Position	G8981	G8982	G8983
Carrying, Moving & Handling Objects	G8984	G8985	G8986
Self Care	G8987	G8988	G8989
Other PT/OT Primary Functional Limitations	G8990	G8991	G8992
Other PT/OT Subsequent Functional Limitations	G8993	G8994	G8995

Modifier	Impairment Limitation Restriction
CH	0 percent impaired, limited or restricted
CI	At least 1 percent but less than 20 percent impaired, limited or restricted
CJ	At least 20 percent but less than 40 percent impaired, limited or restricted
CK	At least 40 percent but less than 60 percent impaired, limited or restricted
CL	At least 60 percent but less than 80 percent impaired, limited or restricted
CM	At least 80 percent but less than 100 percent impaired, limited or restricted
CN	100 percent impaired, limited or restricted

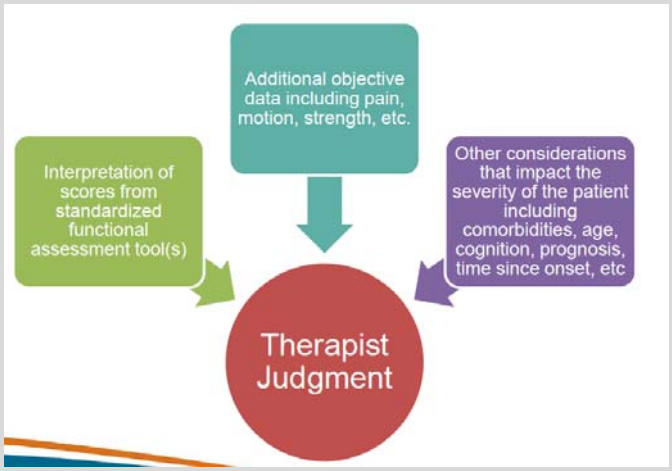
UNIVERSITY of DELAWARE

Patient enters PT

Evaluate Patient and Determine Primary Functional Limitation (G-code)

- Mobility: Walking, Moving Around
- Changing and Maintaining Body Position
- Carrying, moving and Handling Objects
- Self Care
- Other

Use PT Judgment to Determine Current and Goal Severity Modifier for Specific Functional Limitation Chosen based on all available data



Report 2 G-codes with severity modifiers:

- Current Functional Limitation G89XX plus severity level (CH-CN)
- Projected Goal G89XX plus severity expected at discharge of this Goal (CH-CN)

Add Physical Therapy Modifier GP

Report G-code and Modifier again at:

- Every 10th visit
- Re-eval (if performed- restarts the 10day clock)
- Discharge of current goal
- Initiation of Subsequent Goal (if applicable- restarts the 10day clock)
- Discharge from Therapy (unless self DC)

- Choosing “Other”
- Defined by one of the four specific categories
  - Therapy services are not intended to treat a functional limitation
  - When an overall, composite or other score from a functional assessment tool (such as FOTO, etc.) is used and it does not clearly represent a functional limitation defined by one of the four code sets.

- “Other PT/OT Subsequent Functional Limitation” category is only selected after the “Other PT/OT Primary Functional Limitation” category has been reported on the beneficiary during the same episode of care.

What to Report each time..

CODE	Information Represented	Reporting Time
G89XX	Current Functional Status	• Initial Evaluation • Every 10th visit • On Re-evaluation (within the episode of care for this code)
G89XX	Projected Goal Status	• At reporting of a primary G-code and at G-code discharge • Every 10th visit (reporting intervals)
G89XX	Discharge Status	• End of Reporting for this goal OR • Discharge from Therapy

* No discharge goal if the patient self discharges

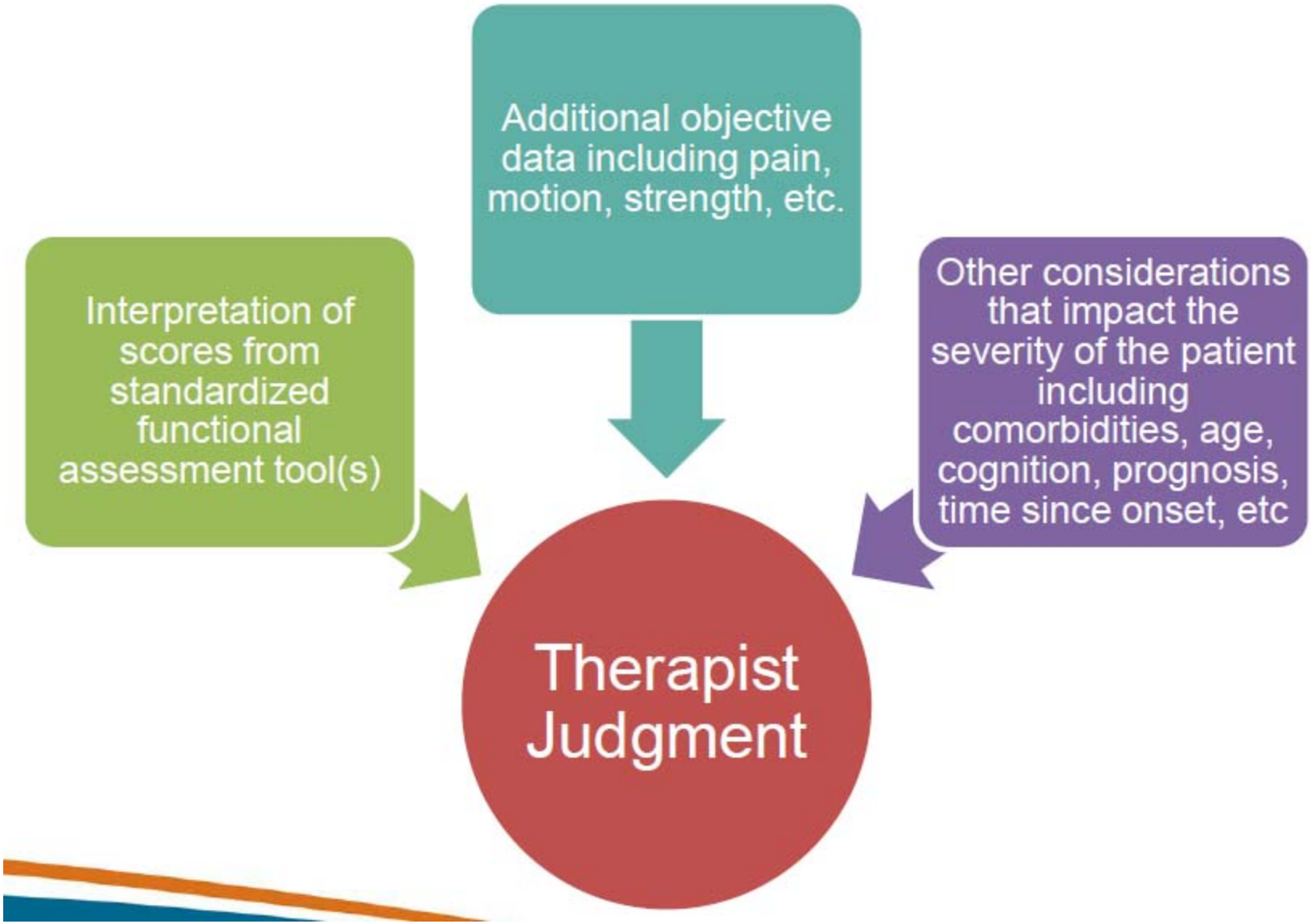
* If visit is one time only: Report Current, Goal and Discharge codes on initial visit

Modifier	Impairment Limitation Restriction
CH	0 % impaired, limited or restricted
CI	1%< 20% impaired, limited or restricted
CJ	20%<40% impaired, limited or restricted
CK	40%<60% impaired, limited or restricted
CL	60%<80% impaired, limited or restricted
CM	80%<100% impaired, limited or restricted
CN	100 percent impaired, limited or restricted

Disability Score	Level of Disability	Description
0-20%	Minimal Disability	• Copes with ADL's • Tx self-care advice on lifting, sitting, posture, physical fitness and diet
21-40%	Moderate Disability	• Experiences more pain with sitting, lifting, standing • Travel and social are difficult • May be out of work
41-60%	Severe Disability	• Pain is the main problem but travel, personal care, social life and sleep are affected
61-80%	Crippled	• Pain impinges on all aspects of life at home and work
81-100%	Bedbound	• Patients are either bed bound or exaggerating symptoms

- The severity modifier reflects the beneficiary's percentage of functional impairment as determined by the clinician furnishing the therapy services for each functional status: current, goal, or discharge. In selecting the severity modifier, the clinician:
  - Uses the severity modifier that reflects the score from a functional assessment tool or other performance measurement instrument, as appropriate.
  - Uses his/her clinical judgment to combine the results of multiple measurement tools used during the evaluative process to inform clinical decision making to determine a functional limitation percentage.
  - Uses his/her clinical judgment in the assignment of the appropriate modifier.
  - Uses the CH modifier to reflect a zero percent impairment when the therapy services being furnished are not intended to treat (or address) a functional limitation

- Therapists will use a valid and reliable assessment tool(s) and/or objective measure(s) in determination of the severity of the functional limitation
- Multiple tools may be used
- Therapist judgment may be used in the severity modifier determination in combination with data gathered
- Documentation of the G-codes and the rationale for selection of severity *must* be included in the medical record


Additional objective data including pain, motion, strength, etc.
Interpretation of scores from standardized functional assessment tool(s)
Other considerations that impact the severity of the patient including comorbidities, age, cognition, prognosis, time since onset, etc
Therapist Judgment

Therapist Documentation

- Therapists must document in the medical record *HOW* they made the modifier selection so that the same process can be followed at succeeding assessment intervals.
- Additionally, therapists must report the G-code and modifiers on the date of service that they are reported with the severity determination documentation.

Role of PTA in G-code determination

- **Can a physical therapist assistant (PTA) participate in the reporting or collection of the functional limitation data?**
- Medicare addresses the involvement of the PTA in the evaluation and re-evaluation of patients in the Medicare benefit policy manual:
- "A clinician may include, as part of the evaluation or re-evaluation, objective measurements or observations made by a PTA or OTA within their scope of practice, but the clinician must actively and personally participate in the evaluation or re-evaluation. The clinician may not merely summarize the objective findings of others or make judgments drawn from the measurements and/or observations of others."

- If a PT has ended reporting on a primary limitation but intends to continue to treat another limitation, the next limitation is entered at the next treatment visit (with current and goal status). If a PTA will be the next person to treat the patient, the PT can fully clarify the next g-code limitation to be treated and the rational for the severity modifier in the current treatment day along with ending of the primary limitation- then the next visit, the PTA need only reference the previous note for the G-code justification and can enter it on that next visit.

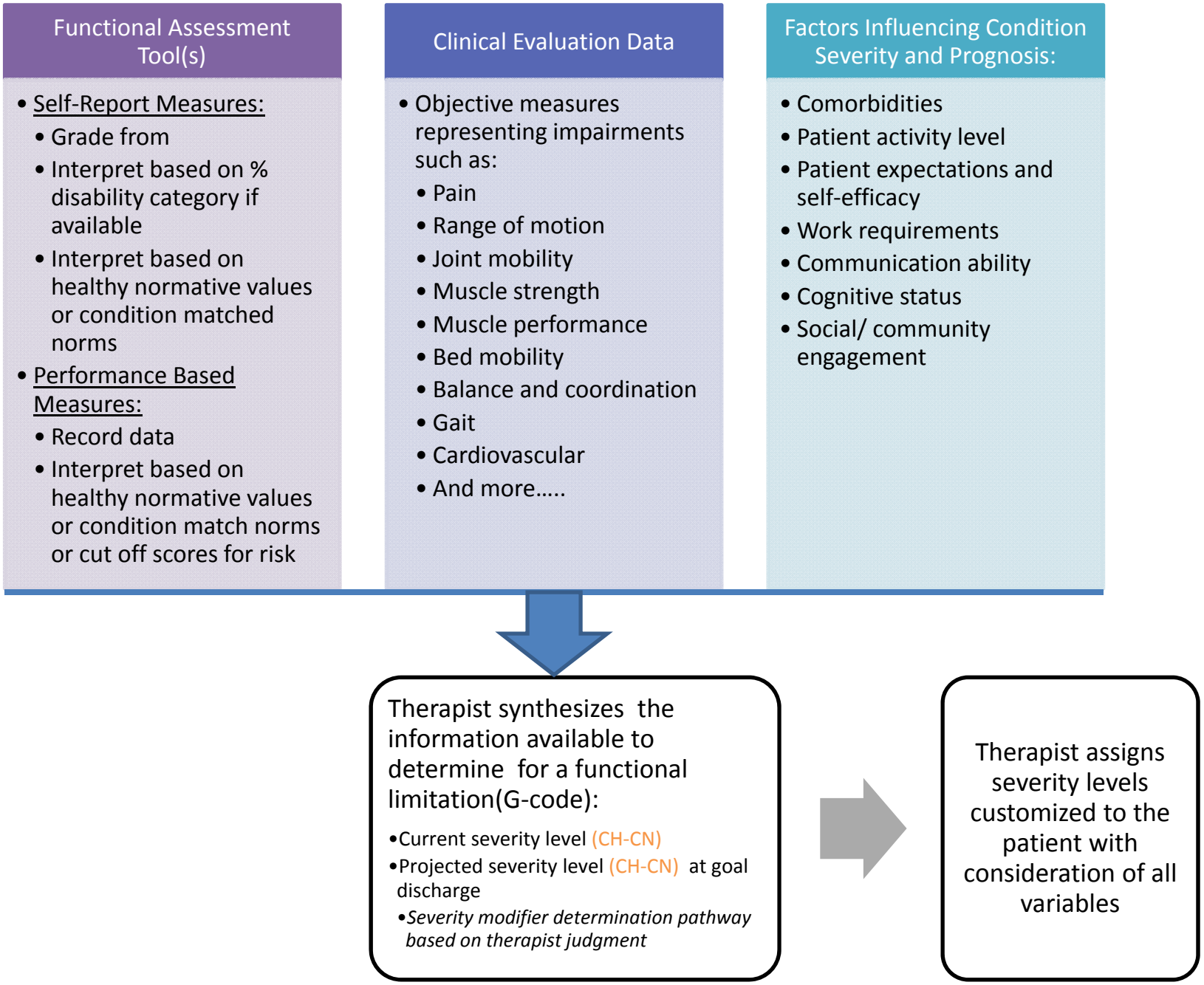
Why do I choose a measure in my clinical practice?

- To help me, as a clinician, see the effect of my treatment
  - Am I getting the results I should? Clinical Milestones
  - Am I clinically effective?
    - How do I compare with what's been published? National norms?
  - I want to monitor and review progress in an objective manner. Describe my patient beyond pain and ROM.
  - I want to use a measure to help motivate my patient.
  - Yellow Flag information when performance and self-perception are disassociated

- THANK YOU!
- QUESTIONS?

Case example: Simple

75-year-old women with a stiff knee 3 weeks following total knee arthroplasty


Functional Assessment Tool(s)
• Self-Report Measures:
• Grade from
• Interpret based on % disability category if available
• Interpret based on healthy normative values or condition matched norms
• Performance Based Measures:
• Record data
• Interpret based on healthy normative values or condition match norms or cut off scores for risk
Clinical Evaluation Data
• Objective measures representing impairments such as:
• Pain
• Range of motion
• Joint mobility
• Muscle strength
• Muscle performance
• Bed mobility
• Balance and coordination
• Gait
• Cardiovascular
• And more…..
Factors Influencing Condition Severity and Prognosis:
• Comorbidities
• Patient activity level
• Patient expectations and self-efficacy
• Work requirements
• Communication ability
• Cognitive status
• Social/ community engagement
Therapist synthesizes the information available to determine for a functional limitation(G-code):
•Current severity level (CH-CN)
•Projected severity level (CH-CN) at goal discharge
•Severity modifier determination pathway based on therapist judgment
Therapist assigns severity levels customized to the patient with consideration of all variables

Case: 75-year-old women with stiff knee 3 weeks following total knee arthroplasty

Functional Assessment Tool(s)

- Self-Report Measures:
  - Knee Outcome Survey- Activities of Daily Living 51%
  - Interpretation of 51% is moderate activity limitation.
  - Global Rating Score 55% :on a scale 0 severely impaired – 100% no impairment. This scale is used for patient's to rate their level of disability related to their injury.
  - Performance Based Measures:
- Timed "UP and Go" 11 seconds (age matched norms 7.7 seconds +/- 2.3)
  - 6-minute walk test 1,000 feet (304.8 meters) Age matched norm: 471m
  - Stair Climbing Test 12 steps in 30 seconds (2.5 steps/sec) Aged matched Norm is 1.6 steps/sec

Clinical Evaluation Data

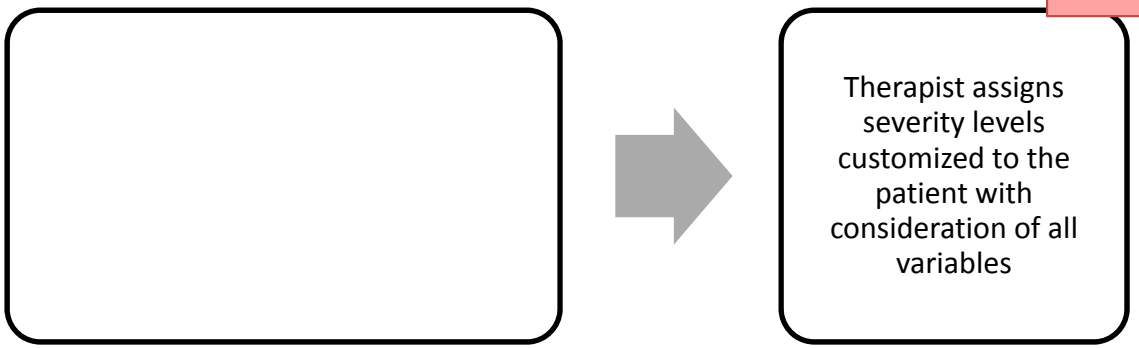
- Objective measures representing impairments such as:
  - Knee AROM lacks 5 degrees of extension to 90 degrees of flexion
  - 60% quadriceps strength deficit on L compared to R
  - Decreased terminal knee extension on the L during stance and decreased step length on the R.

Factors Influencing Condition Severity and Prognosis:

- Pre-Operative knee active range of motion 0 to 135 degrees
- Pre-Operative quadriceps strength 17% deficit on L compared to R
- 2 year-history of gradually worsening knee pain, 6 months ago the pain began to limit her ability to walk for exercise, work in her garden, and care for her young grandchildren

Info to increase disability rating:
History of Falls.
Patient lives alone.
Patient has a history of depression.

Info to decrease disability rating:
Patient has sedentary hobbies and spouse performs all household chores.
Patient is able to perform most functional tasks at previous level of function.



Therapist assigns severity levels customized to the patient with consideration of all variables

Case: 75-year-old women with stiff knee 3 weeks following total knee arthroplasty

Functional Assessment Tool(s)

- Self-Report Measures:
  - Knee Outcome Survey- Activities of Daily Living 51%
  - Interpretation of 51% is moderate activity limitation.
  - Global Rating Score 55% :on a scale 0 severely impaired – 100% no impairment. This scale is used for patient's to rate their level of disability related to their injury.
- Performance Based Measures:
  - Timed "UP and Go" 11 seconds (age matched norms 7.7 seconds +/- 2.3)
  - 6-minute walk test 1,000 feet (304.8 meters) Age matched norm: 471m
  - Stair Climbing Test 12 steps in 30 seconds (2.5 steps/sec) Aged matched Norm is 1.6 steps/sec

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Knee AROM lacks 5 degrees of extension to 90 degrees of flexion
  - 60% quadriceps strength deficit on L compared to R
  - Decreased terminal knee extension on the L during stance and decreased step length on the R.

Factors Influencing Condition Severity and Prognosis:

- Pre-Operative knee active range of motion 0 to 135 degrees
- Pre-Operative quadriceps strength 17% deficit on L compared to R
- 2 year-history of gradually worsening knee pain, 6 months ago the pain began to limit her ability to walk for exercise, work in her garden, and care for her young grandchildren

Info to increase disability rating:
History of Falls.
Patient lives alone.
Patient has a history of depression.

Info to decrease disability rating:
Patient has sedentary hobbies and spouse performs all household chores.
Patient is able to perform most functional tasks at previous level of function.

G-Code: Waling and Moving Around
G8978 Severity CK. Patient has a 55% disability based on KOS and global rating, is below age matched norms in all performance measures, and subjective report of decreased ability to perform her ADL's.

Goal Code G8979 Severity CI. This patient is expected to be able to return to all ADL's and beginning to return to previous higher level activities at discharge with 15% disability in 20 visits

Therapist assigns severity levels customized to the patient with consideration of all variables

Case: 75-year-old women with stiff knee 3 weeks following total knee arthroplasty- RE-EVALUATION (Visit 9)

Functional Assessment Tool(s)

- <u>Self-Report Measures:</u>
  - Knee Outcome Survey- Activities of Daily Living 60%, this is considered moderate activity limitation.
  - Global Rating Score 77% on scale of 0-100%
- <u>Performance Based Measures:</u>
  - Timed "UP and Go" 9.5 seconds (age matched norms 7.7 seconds +/- 2.3)
  - 6-minute walk test 1,200 feet(365.76 meters) Age matched norm: 471m
  - Stair Climbing Test 12 steps in 25 sec(2.1steps/sec)- Norm is 1.6 steps/sec

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Knee 0 to 110 degrees
  - 40% quadriceps strength deficit on L compared to R
  - Consistently demonstrates symmetrical gait mechanics without verbal cueing provided by the physical therapist.

Factors Influencing Condition Severity and Prognosis:

- Patient is unable to walk for exercise in her neighborhood.
- Patient's ROM still limits her to working in her garden.

<u>Info to increase disability rating:</u>
History of Falls.
Patient lives alone.
Patient has a history of depression.

<u>Info to decrease disability rating:</u>
Patient has sedentary hobbies and spouse performs all household chores.
Patient is able to perform most functional tasks at previous level of function.

G-Code: Waling and Moving Around
G8978 Severity CJ. Patient 35 % disability rating due to KOS and global rating and improved functional measures. She is still below age matched norms in all performance measures, and decreased ability to perform her ADL's.

Goal Code G8979 Severity CI. This patient is expected to be able to return to all ADL's and beginning to return to previous higher level activities at discharge with 15% disability in 20 visits

Therapist assigns severity levels customized to the patient with consideration of all variables

Case: 75-year-old women with stiff knee 3 weeks following total knee arthroplasty Discharge Data – Visit 19 (10th visit since Re-evaluation)

Functional Assessment Tool(s)

- Self-Report Measures:
  - Knee Outcome Survey- Activities of Daily Living 86% score is mild disability/limitation
- Performance Based Measures:
- Timed "UP and Go" 9 seconds (age matched norms 7.7 seconds +/- 2.3)
  - 6-minute walk test 1500 feet (457.2 meters) Age matched norm: 471m
  - Stair Climbing Test 12 steps in 19 seconds (1.6 steps/sec) Aged matched norm is 1.6 steps/sec

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Knee AROM 0 to 130 degrees
  - 20% quadriceps strength deficit on L compared to R
  - Patient demonstrates symmetric gait mechanics

Factors Influencing Condition Severity and Prognosis:

- No difficulty with ADL's
- Began to walk in the neighborhood with her husband 2-3 times per week

Info to increase disability rating:
History of Falls.
Patient lives alone.
Patient has a history of depression.

Info to decrease disability rating:
Patient has sedentary hobbies and spouse performs all household chores.
Patient likely was discharged prior to this time due to return to functional goals.

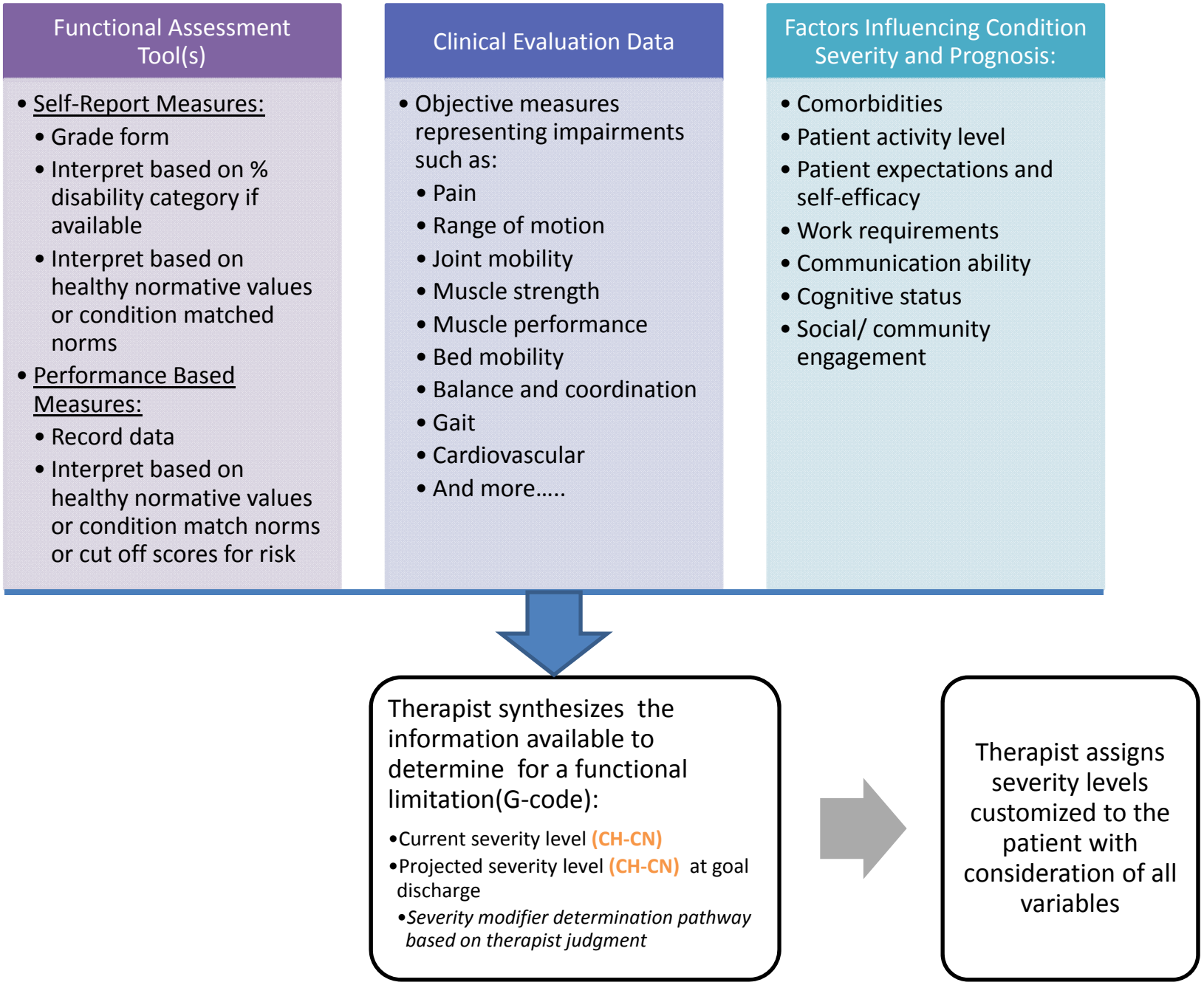
G-Code: Walking and Moving Around G8980 Severity CI. Patient has less than a 10% limitation in walking and moving around based on her functional measures and clinical data. She has met her

Goal Code G8979 Severity CI. The patient was able to achieve a return to function in 19 visits and is limited now only by full return to gardening. She is expected to continue to improve with an independent home program

Therapist assigns severity levels customized to the patient with consideration of all variables

Case Example: Two body part involvement in one case

Patient is a 70 year old R handed male who slipped after missing a step- 2 weeks ago- injured rotator cuff when grabbing railing.


Functional Assessment Tool(s)
• Self-Report Measures:
• Grade form
• Interpret based on % disability category if available
• Interpret based on healthy normative values or condition matched norms
• Performance Based Measures:
• Record data
• Interpret based on healthy normative values or condition match norms or cut off scores for risk
Clinical Evaluation Data
• Objective measures representing impairments such as:
• Pain
• Range of motion
• Joint mobility
• Muscle strength
• Muscle performance
• Bed mobility
• Balance and coordination
• Gait
• Cardiovascular
• And more…..
Factors Influencing Condition Severity and Prognosis:
• Comorbidities
• Patient activity level
• Patient expectations and self-efficacy
• Work requirements
• Communication ability
• Cognitive status
• Social/ community engagement
Therapist synthesizes the information available to determine for a functional limitation(G-code):
•Current severity level (CH-CN)
•Projected severity level (CH-CN) at goal discharge
•Severity modifier determination pathway based on therapist judgment
Therapist assigns severity levels customized to the patient with consideration of all variables

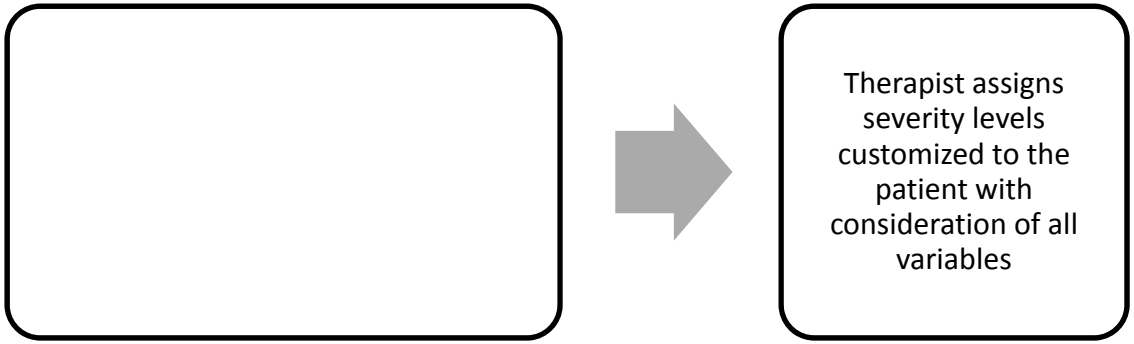
Case: Patient is a 70 year old R handed male who slipped after missing a step- 2 weeks ago- injured rotator cuff when grabbing railing.

Functional Assessment Tool(s)	Clinical Evaluation Data	Factors Influencing Condition Severity and Prognosis:

• <u>Self-Report Measures:</u>
  • Disability of the Arm, Shoulder, Hand 58/100
  • Interpretation of 58 is higher score indicates greater disability.
  • Values in the general population are 10.10 (=/_ 14.68). This is higher disability than the baseline norm in the general population.
• <u>Performance Based Measures:</u>
  • None performed
	• Objective measures representing impairments such as:
	  • Decreased use of arm
	  • Shoulder pain Constant 5-7/10
	  • Decreased R shoulder ROM
	Information on range and strength may impact disability- 20% loss or 60% loss may impact current rating and prognosis including expected timeframes to achieve goal levels
		• High BP- managed by meds
		• Prior Activities: active around home and community
		Information that may impact current and goal disability- current living condition and daily activity expectations, previous history of falls, social situation and support for ADL's including meal prep etc.

<u>Info to increase disability rating:</u>
Patient is avid gardener and has 2 acres of property with livestock to care for (consider disability of 70% or greater)

<u>Info to decrease disability rating:</u>
Patient lives in first floor condo and is in a walking and bridge club. He is able to do most household chores (consider decreasing disability of 40% or less)



Case: Patient is a 70 year old R handed male who slipped after missing a step- 2 weeks ago- injured rotator cuff when grabbing railing.

Functional Assessment Tool(s)

- <u>Self-Report Measures:</u>
  - Disability of the Arm, Shoulder, Hand 58/100
  - Interpretation of 58 is higher score indicates greater disability.
  - Values in the general population are 10.10 (=/_ 14.68). This is higher disability than the baseline norm in the general population.
- <u>Performance Based Measures:</u>
  - None performed

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Decreased use of arm
  - Shoulder pain Constant 5-7/10
  - Decreased R shoulder ROM

Information on range and strength may impact disability- 20% loss or 60% loss may impact current rating and prognosis including expected timeframes to achieve goal levels

Factors Influencing Condition Severity and Prognosis:

- High BP- managed by meds
- Prior Activities: active around home and community

Information that may impact current and goal disability- current living condition and daily activity expectations, previous history of falls, social situation and support for ADL's including meal prep etc.

<u>Info to increase disability rating:</u>
Patient is avid gardener and has 2 acres of property with livestock to care for (consider disability of 70% or greater)

<u>Info to decrease disability rating</u>
Patient lives in first floor condo and is in a walking and bridge club. He is able to do most household chores (consider decreasing disability of 40% or less)

G-Code: Lifting moving objects G8984 **Severity CK**. Patient is 55% limited in carrying, moving and handling objects based on DASH, Pain, range and previous activity level. His projected goal is **Goal Code G8985 Severity CI** as his goal is to return to prior activities and is expected to be discharged with 10% limitation.

Therapist assigns severity levels customized to the patient with consideration of all variables

Case: Patient is a 70 year old R handed male who slipped after missing a step- injured rotator cuff when grabbing railing. 6th Visit – Patient Reports he is having neck pain also and has a referral for treatment for his neck- RE-EVAL to include Neck

Functional Assessment Tool(s)

- <u>Self-Report Measures:</u>
  - Disability of the Arm, Shoulder, Hand reduced from a 58/100 to 42/100
  - Interpretation- the MCID for the DASH is 10 points therefore this change in the score can be interpreted as an improvement in the functional limitation of this patient

Neck Disability Index(NDI) 38%
Interpretation of 38% is Severe Disability

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Objective measures representing impairments:
  - Improved use of arm
  - Shoulder pain reduced to 2-4/10
  - Improved R shoulder ROM

Neck Pain is intermittent 2-/10

Factors Influencing Condition Severity and Prognosis:

- High BP- managed by meds
- Prior Activities: Can perform more home and community activities without pain

Neck OA History
Previous episodes of neck pain

Neck Evaluation identifies impairments for neck treatment, however, the shoulder remains as the primary limiter to his goal of being able to carry, move and handle objects without pain or limitations. So his G-code remains. Goals and a treatment strategy for neck pain are included in the record and treated on subsequent visits.

G-Code: Lifting moving objects G8984
Severity CJ. Patient has improved to a 40% impairment in carrying, moving and handling objects based on improvements in DASH, Pain, range and activity level. His projected goal is **Goal Code G8985**
Severity CI as his goal is to return to prior activities and is expected to be discharged with 10% limitation after a total of 8 weeks of therapy.

Therapist assigns severity levels customized to the patient with consideration of all variables

Case: Patient is a 70 year old R handed male who slipped after missing a step- injured rotator cuff when grabbing railing. **Visit #14-** Shoulder is significantly improving and Neck is now a greater function limiter than the shoulder. RE-EVAL

Functional Assessment Tool(s)

- Self-Report Measures:
  - Disability of the Arm, Shoulder, Hand reduced from last visit of 42/100 to 16/100
  - Interpretation- the MCID for the DASH is 10 points therefore this change in the score can be interpreted as an improvement in the functional limitation of this patient and now score is similar to the general population average score of 10.10

Neck Disability Index(NDI) 38%
Interpretation of 38% is Severe Disability and there is no change in this score since last re-eval(no improvement)

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Minimal issues with shoulder
  - Lift most objects without pain or difficulty
  - ADL's with minimal difficulty
  - Shoulder pain reduced to 2-4/10
  - Improved R shoulder ROM

Neck Pain is intermittent 2-3/10 (no change from initial measure)
Pain and Difficulty with sitting greater than 15-20 min

Factors Influencing Condition Severity and Prognosis:

- High BP- managed by meds
- Can perform Independent HEP

Neck OA History
Previous episodes of neck pain

Discharge G-Code: **Lifting moving objects G8986 Severity CI**. Patient has improved to a 15% impairment in carrying, moving and handling objects based on improvements in DASH, Pain, range and activity level. His projected goal of **Goal Code G8985 Severity CI** was achieved. Next visit the subsequent limitation (neck changing and maintaining body position will be introduced). [See green box to R]

Therapist assigns severity levels customized to the patient with consideration of all variables

Patient achieved goal of carrying groceries and moving arm over head. **G-Code: Lifting moving objects G8986** is discharged and next visit- **VISIT #15**. Cervical code: **Changing/ Maintaining Body Position G8981 CJ** at 38% disability will be initiated with **Goal Code G8982 Severity CI** based on goal of return to previous activity with 10% functional limitation or less at discharge

Case: Patient is a 70 year old R handed male who slipped after missing a step- injured rotator cuff when grabbing railing. Shoulder improved but Neck became primary limiter to function. Discharge **Visit # 21**.

Functional Assessment Tool(s)

- Self-Report Measures:
  - Neck Disability Index (NDI) 8% reduced from 38% at initial recording
  - Interpretation of 8% is minimal disability based on score instructions. Based on MCID:7.5 pts and MDC: 10.2 pts for mechanical neck pain- this patient has improved since last assessment
- Performance-Based Measures:
  - None performed

Clinical Evaluation Data

- Objective measures representing impairments such as:
  - Neck pain is mostly resolved- Intensity 0-1/10
  - Patient can sit and stand for >1hr without difficulty

Factors Influencing Condition Severity and Prognosis:

- High BP- managed by meds
- Neck OA
- Previous episodes of neck pain

In this Case- a 2nd body part requiring therapy prompted a re-eval (visit 6) but did not immediately result in discharge of the primary limitation G-code. Instead, the shoulder remained the primary limiter until visit 14 when the goal status was achieved and the shoulder G-code was discharged. At the next visit(#15), the neck limitation was reported. (although neck treatment was initiated on visit 6). Final patient discharge on visit 21 reflected the neck pain and function gains.

G-Code: Changing and Maintaining Body Position G8983 Severity CI. Patient has less than a 5% limitation based on NDI and pain and activity levels. He was able to achieve his **Goal Code G8982 Severity CI**. The patient was able to achieve a return to previous activities on visit 21.

Therapist assigns severity levels customized to the patient with consideration of all variables