

MODULE 2, TOPIC 2:  
RELIABILITY OF PAIN AND DISABILITY REPORTS,  
EVALUATION OF EFFORT AND QUESTIONNAIRES

IN COST OF FUTURE CARE / LIFE CARE PLANNING

---

---

---

---

---

---

---

---

### OVERALL OBJECTIVES

- To understand the distinct concepts of Reliability of Pain and Disability Reports and Evaluation of Effort
- To identify how RPDR and Effort are evaluated along a continuum throughout the CFC
- To understand the integration of objective and subjective data when forming opinion regarding RPDR and Effort
- To be familiar with questionnaires that assist in gathering perceived abilities and limitations and assist in forming conclusions regarding RPDR

2

---

---

---

---

---

---

---

---

### OBJECTIVES - RPDR

- To understand the definition and concept of Reliability of Pain and Disability Reports
- To understand how pain is evaluated and ways to objectively evaluate a client's subjective reports of Pain and Disability
- To identify the tests utilized when assessing RPDR and understand which ones are appropriate for various diagnoses or identified symptoms
- Tools to consider for evaluation of the reliability of other symptoms (i.e. fatigue, headaches, dizziness) and the effect of complaints on function to be covered in the in-person course.

3

---

---

---

---

---

---

---

---

## OBJECTIVES - PHYSICAL EFFORT

- To understand the definition and concept of Physical Effort Testing (PE)
- To understand how Physical Effort is evaluated and ways to objectively evaluate the level of effort a client is providing during the CFC, i.e., is the client's effort high, low, or variable?
- To identify the tests utilized in the assessment of PE and how to administer, score, and interpret the findings
- Evaluation of Cognitive Effort (CE) covered in Module 5

4

---

---

---

---

---

---

---

---

## OBJECTIVES - QUESTIONNAIRES

- To be familiar with questionnaires utilized for evaluation of pain and disability
- Questionnaires utilized for other symptom complaints (i.e. fatigue, headaches, dizziness, cognitive difficulties, mood changes) will be covered in the in-person course and / or Module 5 but the conceptual underpinnings are included in this webinar.

5

---

---

---

---

---

---

---

---

## CFC/LCP FLOWCHART

- Highlights the stages of the CFC/LCP Process;
- Evaluation of RPDR and Effort is both specific to select tests but also on a continuum;
- Understanding of both concepts is imperative as a foundational element of a CFC evaluation.

6

---

---

---

---

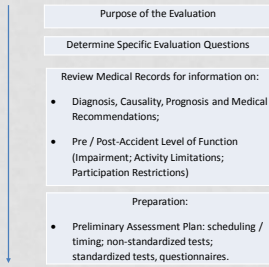
---

---

---

---

## COST OF FUTURE CARE/LCP FLOW CHART




---

---

---

---

---

---

---

---

## COST OF FUTURE CARE/LCP FLOW CHART

Intake Interview		
Consent and Authorization		
Observation of Positional Tolerances (Walk, Sit and Stand)		
Review Purpose of Evaluation	Review Medical and Social History	Future Plans
Current Complaints / Symptoms	Perceived Functional Tolerances	Activities of Daily Living
Vocational History and Goals	Avocational Activities	Observation of Cognitive Function
Insight / Awareness	Collateral Information	Compensatory Tools / Strategies




---

---

---

---

---

---

---

---

## COST OF FUTURE CARE/LCP FLOW CHART

Reliability of Pain and Disability Reports	Physical / Cognitive Effort Findings
<ul style="list-style-type: none"> <li>• Reports vs. Observation of Function</li> <li>• Pain Evaluation</li> <li>• Non-Organic Signs / Placebo Tests</li> <li>• Questionnaires</li> <li>• Repetitive Movement Testing</li> <li>• Insight / Awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Heart Rate Analysis</li> <li>• Competitive Test Performance</li> <li>• Hand-Grip Coefficient of Variation</li> <li>• Bell Curve Analysis</li> <li>• Rapid Exchange Grip</li> <li>• Observation of Clinical Consistency / Inconsistency</li> <li>• Clinical Observations of CTP</li> <li>• Level of engagement</li> <li>• Evaluation of Cognitive Effort</li> </ul>

### Questionnaires

Physical	Cognitive	Psycho-Emotional




---

---

---

---

---

---

---

---

## COST OF FUTURE CARE/LCP FLOW CHART

### Analysis and Formulation of Opinion

Subjective Data	Objective Data
Medical Prognosis	
Formulation of Opinion Regarding Future Care Needs	

### Report Writing/Documentation

Summary	Recommendations	Appendices: Table or Summary of Costs / Data / Research
---------	-----------------	---



---

---

---

---

---

---

---

---

## CFC/LCP FLOWCHART

- The CFC/LCP Flowchart provides an outline of the methodology and the inherent steps that are taken to gather objective and subjective data for the purposes of forming opinions on reliability of self-report (RPDR) and the validity of the test results (Effort) in representing the client's full capacity.
- Highlights the multiple opportunities to evaluate RPDR and Effort throughout the evaluation;
- Highlights the need to utilize both formal evaluation and structured observations in formulating your opinion in both of these areas.

11

---

---

---

---

---

---

---

---

## RELIABILITY OF PAIN AND DISABILITY REPORTS (RPDR)

- To assess RPDR is to assess the dependability and/or accuracy of a client's subjective reports of Pain and/or Disability.
- Assessment is usually completed by using a battery of tests.
- These tests determine the presence or absence of non-organic findings (i.e. findings that have more to do with illness behavior than underlying physical disease).
- In addition, the tests compare a client's subjective reports of function to his/her demonstrated ability during functional testing.
- The use of Distraction-Based Testing and skilled clinical observations is helpful in assessing the Reliability of a client's reports of Pain and Disability.

12

---

---

---

---

---

---

---

---

## RPDR

Does what I (the evaluator) see match with what the client is saying?

AND

Are objective findings consistent with subjective reports of pain and disability?

13

---

---

---

---

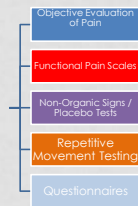
---

---

---

---

### Reliability of Pain and Disability Reports



14

---

---

---

---

---

---

---

---

## PAIN EVALUATION

Observe and document the following throughout your evaluation:

- Symptoms consistent or inconsistent with diagnosis\*
- What happens at times when they report elevations of pain? Are there consistencies or inconsistencies in guarding, bracing, positional tolerances, gait pattern, range of motion, position of comfort, etc. that correlate with these reports? Does this presentation persist under distraction?
- Are reports of pain limited functioning during the intake interview and on questionnaires consistent during evaluation? Do they simply have pain or is pain functionally limiting?
- Always use a rating scale that has the client rate the effect of their pain on their function (Matheson Functional Pain Scale) – as the client's subjective ratings on this scale can be compared with observations of function

15

---

---

---

---

---

---

---

---

## CHANGES THAT SHOULD CORRELATE

- Loss of speed of movement
- Asymmetrical movement
- Irregular movement (e.g., movements that lack fluidity or smoothness)
- Level of functioning (e.g., strength and endurance)
- Affect
- Edema / Swelling, if relevant to the area of injury
- Other

16

---

---

---

---

---

---

---

---

---

---

## FUNCTIONAL PAIN SCALES

- Matheson Functional Pain Scale (Copyright, 2001)
- Used to provide a subjective, yet measurable, self-report of pain levels and subsequent effect of pain on function.

17

---

---

---

---

---

---

---

---

---

---

Number		Functional Descriptor
10	Worst pain imaginable	Causes you to be completely incapacitated and barely able to talk. Requires immediate emergency hospitalization.
8-9		Pain that causes disability between levels 7 and 10. Nearing need for hospitalization.
7	Severe disabling pain	You cannot move or use the painful area. You have difficulty talking and concentrating on anything, but the pain. Needing to lie down and/or pain related fearfulness are also common at this level of pain.
6		Pain that causes disability between level 5 and level 7.
5	Very disabling pain	Causes great difficulty moving or applying any strength through the painful area. You are unable to complete the current activity.
4		Pain that causes disability between level 3 and level 5.
3	Functionally disabling pain	Pain that is starting to affect your ability to perform the current activity, i.e. decreased movement, decreased speed and/or the need to briefly rest and/or stretch in order to continue completing the current activity.
2.75-2.25		The pain is present but not yet at a level which limits you from performing the current activity.
0	No pain	No pain or discomfort.

18

---

---

---

---

---

---

---

---

---

---

## NON-ORGANIC SIGNS

Signs	Organic	Non-Organic
1. Superficial tenderness	Musculoskeletal boundaries	Non-anatomic
2. Deep tenderness	Musculoskeletal boundaries	Non-anatomic
3. Axial loading	Neck pain	Low back pain
4. Simulated rotation	Nerve root pain	Low back pain
5. SLR	Limited supine-no improvement with distraction	>40 degree improvement with distraction
6. Motor weakness	Myotomal	Regional, jerky, giving way
7. Sensory loss	Dermatomal	Stocking like distribution




---

---

---

---

---

---

---

---

---

---

## TENDERNESS

- **Superficial tenderness** - Assess with light pinch (skin rolling) – pain localized to low back area is an organic finding – pain along a widespread band i.e. that extends from coccyx to the mid back or occiput or around to the front is a non-organic finding.
- **Deep tenderness** - Assess with normal palpation – localized tenderness is an organic finding; tenderness crossing musculoskeletal boundaries or overreaction are non-organic findings.

20

---

---

---

---

---

---

---

---

---

---

## SIMULATION TESTS

- **Simulation Tests** - Give the impression you are testing something when you are not.
- **Axial loading** - (Done in standing) Apply a few pounds of pressure through the top of the head asking, "What do you feel when I do that?" – Neck pain is organic and if the patient has neck issues the pressure can be applied through the top of the shoulders rather than the head - Back pain is a non-organic finding.
- **Simulated Rotation** - (Done in standing) Ask the client to stand with their hands by their side - The clinician holds the client's hands against their sides i.e., keeping the lumbar spine in line with the pelvis - then the clinician rotates the client with the trunk as a unit. There is no lumbar rotation so back pain is a non-organic finding - This rotation can cause some sciatic nerve irritation so nerve root pain or no pain is organic




---

---

---

---

---

---

---

---

---

---

## DISTRACTION TESTS

- **Distraction Tests** - Recording a finding in the standard way and compare with results when the client is distracted from what you are assessing
- **SLR** - Complete a standard supine passive straight leg raise (SLR) i.e., client is relaxed in a supine position and the clinician lifts the straight leg measuring the hip angle (about 65 to 90 degrees is WNL) - Then complete a SLR with distraction, which can be done by either placing the patient in a long sitting position or have the patient sit with feet dangling and the clinician straightens the client's knee - A difference in the hip angle measurement with distraction of greater than 40 degrees is a non-organic finding



---

---

---

---

---

---

---

---

## REGIONAL CHANGES

- **Regional Changes** - Regional changes are found in widespread areas such as whole body segments and do not correspond to specific myotomes or dermatomes.
- **Motor Weakness** - Complete strength testing of the lower extremities - weakness that approximates a myotomal pattern is an organic finding - Regional weakness, usually in a whole body segment is a non-organic finding - Regional weakness is usually demonstrated during specific tests but doesn't correspond with overall function. An example of a N.O. finding would be an individual who is unable to demonstrate any power on resisted plantar flexion or a toe raise on a step due to reported weakness due to an ankle injury but is able to complete reciprocal gait on stairs or ladder rise > 90 degrees.
- **Sensory changes** - Assess using light touch and compare to the other sides as changes are often just slightly altered - A change approximating a dermatomal pattern is an organic finding - Stocking-like regional weakness or sensory change is a non-organic finding.

23

---

---

---

---

---

---

---

---

## PLACEBO TESTS

- A test that simulates an assessment that clinically should not impact the client's symptoms.
- Ask "does this increase your (LB/neck/shoulder, etc.) pain?" and observe the client's response.
- Recommended tests:
  - Ankle Dorsiflexion;
  - Wrist Flexion / Extension;
  - Patellar Shift;
  - Isolated Finger Distraction ;
  - Olecranon Shift.

24

---

---

---

---

---

---

---

---



## ANKLE DORSIFLEXION TEST

- **Ankle Dorsiflexion Test** (for patients with back pain)
  - The client is positioned in sitting with the lower legs hanging off the side of the examination table. The clinician supports the lower leg and passively dorsiflexes the client's ankle to approximately 10 degrees. The clinician can ask, "What do you feel when I do this?" or "does this increase your back pain?"
  - A non-organic finding is back pain, as this maneuver does not stretch any tissue structures in that area as the knee remains bent.

25

---

---

---

---

---

---

---

---

## WRIST FLEXION/EXTENSION TEST

- **Wrist Flexion/Extension Test** (for patients with neck pain)
  - The client is positioned in a seated position on the examination table and the clinician is sitting next to him/her. The client's elbow is held at 90 degrees flexion and forearm is supported. The clinician passively flexes the wrist through 5-10 degrees and asks the client whether the maneuver increases the pain in the neck.
  - A non-organic finding is neck pain as there is no soft tissue or nerve root stretch between the wrist and neck.

26

---

---

---

---

---

---

---

---

## PATELLAR SHIFT TEST

- **Patellar Shift Test** (for patient with back pain)
  - The client is positioned in supine or sitting with his/her legs straight and relaxed. The client's patella is passively shifted both in a medial/lateral and/or superior/inferior direction by the clinician. The client is asked "Does this increase your lower back pain?" or "Is there any change in your back pain?"
  - A non-organic finding would be reported back pain as there is no stress to this tissue structure.

27

---

---

---

---

---

---

---

---

## ISOLATED FINGER DISTRACTION TEST

- **Isolated Finger Distraction Test** (for patients with neck pain)
  - The client is placed in a seated position with the humerus in the anatomically neutral position and the elbow resting at a 90-degree angle. The clinician passively applies gentle distraction to a finger joint such that movement or stretch does not occur proximal to the MCP joint. The examiner's mobilizing hand will be placed on the client's finger, while the clinician's other hand will be placed on the client's hand distal to the wrist isolating the finger traction within the hand.
  - A non-organic finding is neck pain.

28

---

---

---

---

---

---

---

---

## OLECRANON SHIFT TEST

- **Olecranon Shift Test** (for patient with neck pain)
  - The client is placed in a seated position with the humerus in the anatomically neutral position and the elbow resting at a 90-degree angle. The clinician "passively moves" the olecranon of the client. The olecranon is a bony landmark that does not move.
  - A non-organic finding is neck pain.

29

---

---

---

---

---

---

---

---

## REPETITIVE MOVEMENT TESTING

Repetitive Movement Testing involves asking the client to move through a certain functional ROM while being timed. This is a timed test with a distraction component so it also gives us information on effort and consistency of performance. Some RMT's have norms in terms of time to completion.

- During Repetitive Movement Testing, observe for the following:
- Willingness to move
  - Range of motion
  - Quality, rhythm, speed of movement
  - Affect
  - Muscle spasm
  - Consistency of movement

30

---

---

---

---

---

---

---

---

### HOW DOES THIS GIVE INFORMATION ABOUT RPDR?

- Clinically, it is expected that as someone's reported functional limitations on a functional pain scale (FPS) increase, there will be observable changes in performance such as speed, endurance, strength, symmetry, etc.
- Repeat Repetitive Movement Testing involving the area can be done and compared with ratings on the FPS. There should be a relationship between clinical presentation and ratings on the FPS.
- Check for consistency of performance with findings during standard musculoskeletal evaluation but ensure it is standardized.

31

---

---

---

---

---

---

---

---

### RMT TEST PROTOCOL

**Protocol** - The evaluator should clearly present to the client the test instructions and then review the following:

- One full exercise / movement first
- Repeat exercise / movement 10 times at a comfortable pace
- Repeat exercise / movement 10 times as fast as able and safe – this is timed
- Approximate "normals" for time for some tests; not adjusted for age or gender

32

---

---

---

---

---

---

---

---

### FORWARD REPETITIVE REACHING

- Start with fingers touching the front of shoulders, and then reach forward as far as able, return to shoulders
- Repeat 10 times at a comfortable pace
- Repeat 10 times as fast as able - This is timed
- Normal is *approximately* 7 seconds or less

33

---

---

---

---

---

---

---

---

## OVERHEAD REPETITIVE REACHING

- Start with fingers on shoulders, and then reach vertically overhead as far as able, return fingers to shoulders
- Repeat 10 times at a comfortable pace
- Repeat 10 times as fast as able - This is timed
- Normal is *approximately* 7 seconds or less

34

---

---

---

---

---

---

---

---

## REPETITIVE CROUCHING

- From an upright position, crouch to touch the floor in front and stand fully upright again
- Repeat 5 times at a comfortable pace; repeat 5 further times timed
- Observe fluidity, speed, symmetry, and balance
- No "normal". Compare early and late day, when applicable.

35

---

---

---

---

---

---

---

---

## REPETITIVE STOOPING

- From an upright position (knees slightly bent, i.e., 5 degrees) - stoop forward as far as able, fingers reaching toward toes
- Repeat 10 times at a comfortable pace.
- Repeat 10 times as fast as able (ensuring knees are slightly bent) - This is timed
- Normal is *approximately* 15 seconds or less

36

---

---

---

---

---

---

---

---

## DESIGN YOUR OWN RMT

- Ensure same parameters for measurement
- Early / Late Day Comparison
- Right / Left Comparison
- Examples:
  - Fist Open / Close
  - Elbow Flexion / Extension
  - Ankle Dorsi / Plantar Flexion
  - Etc.

37

---

---

---

---

---

---

---

---

---

---

## PHYSICAL PERFORMANCE: DIFFERENCES IN MEN AND WOMEN WITH / WITHOUT LOW BACK PAIN

**Objective of the Study** – To determine the extent to which there may be major differences in scores on a battery of physical performance tasks among men with nonspecific, mechanical low back pain (LBP), women with LBP, healthy men and healthy women.

- Six tests with norms by gender (not age-adjusted)
- Diane M. Novy, PhD, and Maureen J. Simmonds, PhD, et al., *Archives of Physical Medicine and Rehabilitation* Vol. 80 February 1999.

38

---

---

---

---

---

---

---

---

---

---

## PHYSICAL PERFORMANCE: DIFFERENCES IN MEN AND WOMEN WITH / WITHOUT LOW BACK PAIN

DIFFERENCES IN PHYSICAL PERFORMANCE, Novy 197

Table 1: Description Statistics on the Individual Performance Tasks

Performance Task	Group			
	Women With LBP (n = 40)	Men With LBP (n = 20)	Women Controls (n = 20)	Men Controls (n = 20)
Distance walked	418.41 (106.78)	480.39 (86.14)	501.19 (45.74)	535.03 (84.40)
50-Foot walk	9.35 (2.17)	9.31 (3.34)	6.60 (0.93)	8.12 (0.74)
50-Kneelend	11.03 (4.42)	12.76 (6.67)	7.26 (1.14)	7.61 (1.22)
Trunk flexion	20.49 (7.20)	21.11 (9.28)	15.44 (1.80)	14.21 (2.18)
Loaded reach	58.89 (19.33)	64.74 (22.72)	67.13 (8.86)	67.65 (6.48)
Soreness fatigue	33.97 (27.15)	31.07 (27.07)	76.28 (23.28)	73.66 (22.53)

Values reported as mean (SD).

defined by the Sorensen fatigue task (correlation of .87), with subject/variable ratio (ie, 20 to 1), there can be a reasonable

39

---

---

---

---

---

---

---

---

---

---

## QUESTIONNAIRES FOR RPDR

- Spinal Function Sort
- Hand Function Sort
- Multidimensional Task Ability Profile 2p



---

---

---

---

---

---

---

---

## SPINAL FUNCTION SORT

- SFS used primarily with clients having spinal injuries (back or neck). The test evaluates the client's perception/reports of his/her abilities and limitations.
- Scoring determines the client's Rating of Perceived Capacity (RPC).
- The RPC score can be correlated with healthy males / females and disabled males / females involved with rehabilitation programs in the US. The score can also be correlated with the DOT strength categories for work.



41

---

---

---

---

---

---

---

---

## RELIABILITY OF THE TOOL

- Follow these guidelines for interpretation:
- **Int 1** – Reliable. Score and report results.
- **Int 2** – Marginally reliable. Ask the evaluatee to review the "2" items for resolution. Score and report the results after this review.
- **Int 3** – Marginally unreliable. Review discrepancies with the evaluatee. Score and report the results after this review.
- **Int 4** – Unreliable. Review discrepancies with the evaluatee. Retest and report the results. If the evaluatee continues to achieve unreliable results, report the finding of unreliability.

42

---

---

---

---

---

---

---

---

## HAND FUNCTION SORT

- Similar to the SFS in administration but focused on upper limb injuries. The test is used to evaluate the client's perception of his or her abilities and limitations.
- Tasks are broken up into sedentary, light, medium, heavy, very heavy. Can be scored separately to allow assessment of the hand patient who might have less tolerance to sedentary activities (more fine motor) and more tolerance to heavier activities (more gross motor).
- Scoring: Rating of Perceived Capacity (RPC). The RPC score can be correlated with DOT strength categories for work. There is no normative group comparison for RPC scores.



43

---

---

---

---

---

---

---

---

## MULTIDIMENSIONAL TASK ABILITY PROFILER (MTAP) 2P

Purpose:

- Measurement of functional ability
- Quantification of work ability / disability measured against PDC levels
- Quantification of performance for ADLs
- Determination of ability to safely and dependably perform a particular job's demands



44

---

---

---

---

---

---

---

---

## QUALIFICATIONS

- **Qualifications for Administration – "B-Level"**. The standards require the user to have:
- A degree from an accredited four-year college or university in psychology, counseling, education, or a closely related field
- Plus - Satisfactory completion of coursework in test interpretation, psychometrics, and measurement theory, educational statistics or closely related area;
  - Or - License or certification from an agency that requires appropriate training and experience in the ethical and competent use of tests;
  - Or - A professional graduate degree and subsequent governmental licensure in healthcare discipline that requires basic training in the selection, administration, interpretation, and safeguarding of tests, structured interviews, and other assessments.

45

---

---

---

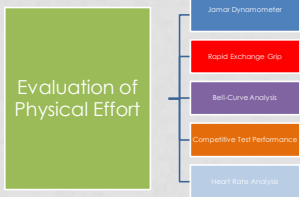
---

---

---

---

---



46

---

---

---

---

---

---

---

---

### PHYSICAL EFFORT TESTING

'Physical Effort Testing' refers to evaluation of an individual's levels of physical exertion during testing procedures.

This type of testing is best evaluated via a multi-faceted approach, ideally implementing a combination of isometric, behavioral, and/or cardiovascular measures to help gauge a client's level of effort.

47

---

---

---

---

---

---

---

---

### PHYSICAL EFFORT TESTING

Physical Effort Testing is not intended to gauge motivation or intent. Some possible reasons behind submaximal effort include:

- o Fear of pain or test anxiety;
- o Poor conditioning / easy fatigability
- o Desire to have the evaluator fully appreciate one's level of perceived dysfunction;
- o Desire for secondary gain; and/or,
- o Habitual display of reduced abilities related to one's chronic pain cycle.

48

---

---

---

---

---

---

---

---



## JAMAR HAND DYNAMOMETER

- Jamar 5 Position Grip Test – Maximum Effort Testing
- Bell Curve Analysis
- Rapid Exchange Grip Test



49

---

---

---

---

---

---

---

---

## JAMAR ISOMETRIC GRIP/MVE TEST

- Purpose:
  - Strength for gripping at various diameters
  - Evaluate consistency of effort (reliability)
- Administration
  - Elbow non-supported
  - Elbow at 90 degrees of flexion
  - Forearm neutral
  - Jamar in line with forearm

50

---

---

---

---

---

---

---

---

## MVE RESULTS AND OBSERVATIONS

- MVE – 2 of 10 CV's over cut-point acceptable
- Observations:
  - Grasping patterns;
  - Musculoskeletal change;
  - Pattern of grip strength over 5 spans;
  - Variability in strength.

Note: Evaluee should be blind to results if doing MVE test

iii. Norms: Grip strength: Mathiowetz: 310 Males; 318 Females (aged 20 - 94) from Milwaukee area; norms for 6-19 year olds (231 M, 240 F)

51

---

---

---

---

---

---

---

---

## BELL CURVE ANALYSIS

- Stokes, Hildreth, Lister, Neibuhr, and many others have researched and identified that the presence of an approximately bell-shaped curve is an indicator of high effort.
- A curve with two separate peaks, or a "flat" curve, is an indicator of low or inconsistent effort. The interpretive difficulty lies with analyzing exactly what score distribution makes a "flat" curve.

52

---

---

---

---

---

---

---

---

## RAPID EXCHANGE GRIP (REG) TEST

### Purpose:

- To further evaluate actual maximum grip strength
- To further evaluate effort (compare with MVE findings)
- Administration
  - Following 5-position static grip strength test
  - Evaluatee sitting with elbows flexed to 90 degrees
  - Jamar positioned at strongest grip setting from MVE findings
  - 6 - 10 trials per hand; alternating rapidly while providing maximum grip strength
  - Evaluatee blind to results
  - Test is completed rapidly

53

---

---

---

---

---

---

---

---

## INTERPRETATION OF REG

- Hildreth/Lister (1990) (Journal of Hand Surgery)  
*"A REG test score greater than or equal to the static score is a positive REG."*
- Joughin: (1993) (Journal of Hand Surgery)  
*"The REG test may be considered positive if percent change in maximal grip is 25% or greater."*
- Stokes/Landrieu (1995) (Journal of Hand Surgery)  
*"Using 12 lbs. as an upper limit, added to the peak 5 rung score, we were able to accurately categorize 90.6% of sincere patients as not feigning, and we were able to accurately categorize 81.5% of low effort patients as feigning."*
- Lemstra (2004) Spine  
REG >12 pounds a strong finding of low effort

54

---

---

---

---

---

---

---

---

## INTERPRETATION OF REG

- Current Matheson recommendation is to use the Stokes (1995) 12 lb (5 kg) guideline for REG (> results on MVE) cut point.

55

---

---

---

---

---

---

---

---

## COMPETITIVE TEST BEHAVIORS

- Behavioral examples:
  - Starting tests prior to the start command
  - Ending tests following the stop command
  - Asking for extra practice
  - Voiced frustration at errors
  - Requesting to repeat a test trial
  - Asking for clarification of instructions
  - Rushing behaviors



56

---

---

---

---

---

---

---

---

## COMPETITIVE TEST BEHAVIORS

- Musculoskeletal examples
  - Accessory muscle use
  - High levels of muscle recruitment, i.e. muscle tremor (not co-contraction); muscle bulging
  - Postural accommodation, e.g. Widened stance during lifting, position self close to dexterity test
  - Perspiration / flushing



57

---

---

---

---

---

---

---

---

## HEART RATE MONITORING

- Used less often in CFC; more often in WCE/FCE;
- Heart rate monitoring appropriate for tests that use large muscle groups with sufficient repetition



58

---

---

---

---

---

---

---

---

## HEART RATE MONITORING

- Maximum allowable = 220 - age of client, for example maximum heart rate for 45 year old is 175.
- For individuals who are administered strength testing or high demand mobility testing 70-85% of RHR should be achieved (70% = 122 beats per minute; 85% = 149 beats per minute).
- It is easier to achieve 70-85% maximum for individuals:
  - With a high resting heart rate, i.e. 96 bpm
  - Who are deconditioned
  - Older
- For younger/fitter individuals 65% of maximum allowable heart rate is more reasonable

59

---

---

---

---

---

---

---

---

## EPIC LIFT TEST: HEART RATE MONITORING

- Jay et al studied the EPIC test (used stand/rest HR)
- Original guidelines required a 10% increase in heart rate on each subtest
- Original guidelines were found to falsely identify high effort with low effort clients
- New guidelines were:
  - <25% HR increase suggested low effort
  - 25-50% in HR was equivocal
  - >50% increase in HR suggested high effort

60

---

---

---

---

---

---

---

---

## INTERPRETATION

- **High Levels of Physical Effort** - This term describes the individual who provided consistently high levels of Physical Effort throughout the CFC. Findings can be high strength values and fast dexterity scores for some clients, whereas for others limited earlier by disabling pain, such values may be markedly lower and yet still represent high effort. In either instance, the evaluator should see clinical signs supporting the findings of high effort.
- **Near Full Physical Effort** - This term describes the individual that did not provide full effort but whose effort was within a close proximity to full effort. Clients who are rated as providing "near full Physical Effort" may have isolated (at maximum 1 to 2) findings of low effort.

61

---

---

---

---

---

---

---

---

## VARIABLE

- **Variable Physical Effort** - This term describes the individual who provided high effort on some tests and low effort on other tests. Where objective clinical signs are present, the evaluator should identify which tests the client provided high effort and which tests the client provided low effort.

62

---

---

---

---

---

---

---

---

## LOW AND EQUIVOCAL

- **Low Physical Effort** - This term describes someone whose Physical Effort was well below his/her physical ability. The individual has provided lower effort than he/she is capable of on almost all tests. This finding is supported by inconsistent test results and/or the absence of objective signs of disabling pain or physical restriction.
- **Equivocal Physical Effort** - This term describes individuals who are in the gray area, i.e., the evaluator is not sure whether or not the client gave full effort. This term should be applied to describe effort on specific tests or activities as opposed to the entire functional evaluation.

63

---

---

---

---

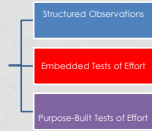
---

---

---

---

## Evaluation of Cognitive Effort



64

---

---

---

---

---

---

---

---

## OSWESTRY LOW BACK DISABILITY QUESTIONNAIRE

- Fairbank et al, 1980
- 10-item self-report checklist that has been shown to be valid in assessing perceived disability.
- Straightforward administration and scoring.
- Score presented as a percentage but useful to highlight the areas where most limitation or disability is identified.
- Minimal / Moderate / Severe / "Crippled"

65

---

---

---

---

---

---

---

---

## NECK DISABILITY INDEX

- Vernon and Mior, 1991
- 10-item self-report checklist that has been shown to have strong reliability and be valid in assessing perceived disability.
- Straightforward administration and scoring.
- Score presented as a percentage but useful to highlight the areas where most limitation or disability is identified.
- Minimal / Moderate / Severe / "Crippled"

66

---

---

---

---

---

---

---

---

## DALLAS PAIN QUESTIONNAIRE

- Lawlis et al, 1988
- Used to assess chronic spinal pain across four "factors" or areas:
  - Factor I      Daily Activities
  - Factor II      Work/Leisure Activities
  - Factor III     Anxiety/Depression
  - Factor IV      Social Interest

67

---

---

---

---

---

---

---

---

## DPQ INTERPRETATION

**Interpretation** - The 50<sup>th</sup> percentile was regarded as being the significant interference level. The DPQ was found to be predictive of tx needs; therefore three profiles were developed to determine what type of treatment was most appropriate for the patient.

1. **Medical treatment alone is appropriate**  
Factors I and II are greater than or equal to the 50<sup>th</sup> percentile and factors III and IV are below the 50<sup>th</sup> percentile.
2. **A behavioral approach is the primary intervention**  
Factors III and IV are above or equal to the 50<sup>th</sup> percentile and factors I and II are below the 50<sup>th</sup> percentile.
3. **Combined medical and behavioral intervention are appropriate**  
All four factors are above the 50<sup>th</sup> percentile.

68

---

---

---

---

---

---

---

---

## OTHER QUESTIONNAIRES

- Upper / Lower Extremity
  - Headache
  - Dizziness
  - Visual Changes
  - Fatigue
  - Mood / Depression
  - Anxiety
  - Post-Traumatic Stress Disorder
- To be discussed and reviewed in the course!

69

---

---

---

---

---

---

---

---

## REVIEW OF OBJECTIVES

- What is RPDR? Why is it important to the CFC? What tests and measures are used to evaluate RPDR?
- What is a functional pain scale and how do I use it to assist with RPDR?
- What is physical effort testing? Why is it important to the CFC? What tests and measures are used to evaluate physical effort?
- What are some of the questionnaires I can use to evaluate RPDR?

70

---

---

---

---

---

---

---

---

## HOMEWORK - 2 CASE STUDIES

- Mr. J was assessed in his home 4 years post-accident where he sustained soft tissue injuries and an ankle fracture. Mr. J has been diagnosed with chronic myofascial pain and early degenerative changes in the ankle. He had undertaken significant home renovations prior to the accident and performed all of the regular and seasonal home and yard maintenance work. On interview he reported that he is able to manage with all self-care activity with pacing, and performs aspects of home and yard maintenance (i.e. raking, sweeping, light gardening / weeding) for short duration (maximum of 1 to 2 hours per day) with pacing. He reports that he does not do any ladder work due to residual balance issues or heavy digging due to neck and back pain.
- Mr. J was assessed as being able to lift in the Light strength category (i.e. occasional lifting / carrying of 20 lbs) and carry up to 30 lbs. He was able to assume low level postures but not able to perform sustained (> 7 minutes) or repetitive low level work. He demonstrated the capacity to perform tasks, as identified above, but demonstrated poor endurance. His pain ratings and the effect of pain on functioning (i.e. functional pain scale measure) were supported by objective findings.

71

---

---

---

---

---

---

---

---

## MR. J CONTINUED

- Mr. J's MTAP was 57 out of 200, which places him at the 29<sup>th</sup> percentile compared with unemployed males of his age, and within the Sedentary level of physical demand characteristics.
- In terms of ADL scores by type of demands, Mr. J's ratings indicated that he had slight limitations for self-care (i.e. able to complete 76% of the items) but would have moderate limitations for light housekeeping (i.e. able to complete 46% of the items), and moderate to significant limitations for heavy housekeeping (i.e. able to complete 19% of the items) and heavy home maintenance tasks (i.e. able to complete 4% of the items).

72

---

---

---

---

---

---

---

---



## MR. J CONTINUED

- What would you conclude regarding the reliability of Mr. J's pain and disability reports?
- What other measures would you use to evaluate RPDR in Mr. J's case?
- What questionnaires would you use to evaluate Mr. J's perception of his abilities and limitations (i.e. questionnaires reviewed in this webinar or others you currently utilize).

73

---

---

---

---

---

---

---

---

## MS. S HOMEWORK

- Ms. S was seen in her home 2 years post-accident in which she sustained a left rotator cuff injury, for which she required surgical repair, and soft tissue injuries of the neck. She reports residual left shoulder complaints, particularly of her left upper trapezius and shoulder "gets activated", and intermittent sensory changes along the ulnar distribution of her left hand and fingers (4<sup>th</sup> and 5<sup>th</sup>) that are worsening in terms of severity and frequency. She identified that she favours her left upper extremity to avoid pain and has significantly reduced participation in housekeeping.
- On MVE testing she had 4 CV's over the cut-point (L hand) but there was a bell-curve and her REG was negative.
- Range of motion on informal observation of left shoulder abduction was slightly greater (10 to 15 degrees) when demonstrating window washing than formal measurement.
- On the Dallas Pain Questionnaire she rated significant level of interference (> 50%) for all factors.

74

---

---

---

---

---

---

---

---

## MS. S. CONTINUED

- What would you conclude about Ms. S's level of physical effort during her CFC evaluation? Interpret the available data and choose terminology (i.e. Full / Near Full / Variable / Low / Equivocal) to describe Ms. S's effort.
- What other tests or measures would you administer to evaluate physical effort?

75

---

---

---

---

---

---

---

---

## SUBMIT HOMEWORK

COMPLETE before moving onto Module 2/Topic 3

**Please submit to: [cflcpcourse@roymatheson.com](mailto:cflcpcourse@roymatheson.com)**

**Please put Module 2, Topic 2 RPDR, Effort and Q's in the subject line**

76

---

---

---

---

---

---

---

---