Functional Capacity Evaluations
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Regional Workers’ Compensation Specialist
Objectives

1. What is a Functional Capacity Evaluation and what does it entail?
2. What is the purpose of an FCE?
3. What is an FCE vs FFD, POET, or IR?
4. What makes an FCE reliable and valid?
5. What are two separate approaches to FCE testing?
6. What are the components of an FCE?
7. How to interpret an FCE?
8. What are the current employment and disability laws that affect the legal defensibility of an FCE?
What is a Functional Capacity Evaluation?

An intensive, systematic evaluation process to determine an injured employee’s physical/functional ability (and deficits) to perform work.

Each FCE is specific and adapted to the injured worker’s specific in jury and job duties.
Purpose of Functional Capacity Evaluations

Providing information to all involved parties
Case resolution
Providing recommendations for further treatment when indicated
Establishing return to work restrictions/modifications
Educating the worker
  • Providing abilities and limitations to ensure safe and productive return to work.
  • Prevent additional workplace injury
Ensuring the employer
  • Providing awareness of the physical demands of the job and the worker's physical capacity and limitations regarding return to work.
  • Provides specific recommendations for modifications and accommodations.

Enabling the physician
  • Provides accurate functional testing that leads to a medical release for return to work, appropriate work rehabilitation, or worker/worksite modifications.

Assisting the Insurance System (Carriers, TPA's, Case Managers, Claims Administrators, Social Security Administrators, etc.)
  • Close cases efficiently and effectively.

Providing attorneys, (for both parties involved)
  • Provide objective functional testing and abilities of the client.
Functional Capacity Evaluations vs.….  

Post Offer Employment Testing - POET  
• Legalities  
  • Employment contingent on passing POET  
  • All new hires have to complete it, can’t pick and choose  
  • What can you test?  

Fit for Duty Testing - FFD  
• Legalities  
  • Injured body part and essential demands only  

Functional Capacity Evaluations - FCE  
• Partial FCE vs Full FCE  
  • What can be tested for partial  
  • Why would you test partial  
• CUEE-Comprehensive Upper Extremity Evaluation  
  • UE testing only  
  • Various types of FCE protocols or software & hardware systems  

Impairment Rating Recommendations - IR, IRR, PIR  
• Assists with physicians filling out 14B  
• Can be a stand alone test, FCE is not required.
Reliability vs. Validity

- Validity implies the extent to which the research instrument measures, what it is intended to measure. Reliability refers to the degree to which scale produces consistent results, when repeated measurements are made. A reliable instrument need not be a valid instrument.
- Invalid?
  - Are results truly accurate and meaningful?
    - Did the client give submax effort?
    - High pain focus?  Self-limiting behaviors?
    - Inconsistencies?
  - Physician can use entire range of clinical skill and judgement along with objective testing to determine if the subjective reports are plausible and consistent with the impairment being evaluated.
Validity Testing Methods

Pain Questionnaires
Static Strength Tests

Comparing multiple tests to determine consistency.
  • One test in and of it’s self is not excluding functional ability.

Lifting-Movement Mechanics
  • Kinesiophysical limitations vs self limiting behaviors
    • Kinesiophysical limitation- inability to maintain safe body mechanics.
    • Kinesiophysical changes are consistent with safe limits and are based on predictable movement patterns.
  • Other physiological/biomechanical changes.

Use the following components and testing results to determine client’s effort and validity of results
  • Biomechanical Changes/Kinesiophysical Changes
  • Strength Changes
  • Coefficient of Variation
  • Strength curves
  • Rapid Exchange grip strength
Kinesiophysexual vs Psychophysical Approach

**Kinesiophysexual Approach**
- Ability is determined based on biomechanical changes/deficits.
- Look to correlate these changes with subjective reports.
- Based on clinician’s medical knowledge of biomechanics, diagnosis, physiology, anatomy, and cardiovascular endurance.
- Muscle recruitment, body mechanics, control & safety, counter balance, substitutions.
- Defined as evaluation of muscle and joint function.

**Psychophysical Approach**
- Patient’s have control.
  - Subjective complaints/tolerance determines progression of testing.
- Not based on the presence or absence of mechanical changes.
Components of Functional Capacity Evaluations

Intake Assessment
Validity Testing (Sincerity of Effort)
Musculoskeletal Screen
Pain Questionnaires and Symptom Magnification Assessments
Cardiovascular Assessment
Non Material Handling/Positional Tolerances
Material Handling
Essential Job Demand Testing
Components of Functional Capacity Evaluation

Intake Questionnaire
- Medical History
- Vocational Data

Consent to Testing

Physical Activity Readiness Questionnaire

Resting Heart Rate/BP

Purpose
- Determine medical stability
- Clarify the ground rules for conducting the test
- Receive client consent
- Establish rapport
- Gather information regarding past history, current perceived functional status, and current psychosocial status.

Primary Objective
- Gather information to determine which components of the assessment would be appropriate to administer.

Secondary Objective
- Observe the client’s functional abilities
  - Ex. Sitting while completing paperwork.
Components of Functional Capacity Evaluations

Purpose/Object:

- Determine pain focus
- Note inconsistencies between subjective response and observed functional capabilities
- Assess symptom magnification behavior
- Measure an individual's perceived capability to perform work

Oswestry Low Back Disability Index
Neck Disability Index
McGill Pain Questionnaire
Waddell’s Test
Components of Functional Capacity Evaluations

Sincerity of Effort Testing

Purpose/Objective:
- Objective measure to determine client’s effort and reliability of results.

- Jamar Hand Grip Tests
  - Maximum Voluntary Effort (MVE)
  - Bell Shape Curve
  - Rapid Exchange Grip (REG)
Components of Functional Capacity Evaluations

**Maximum Voluntary Effort (MVE)**
- Three trials at each position/each hand are taken on the hand grip dynamometer to determine consistency and reliability
  - Coefficient of Variation
    - 0-11% COV= consistent and reliable
    - 11-19% COV= unreliable, neither consistent nor inconsistent
    - 20+% COV= absolutely not consistent or reliable

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<th>Avg.</th>
<th>SD</th>
<th>COV</th>
</tr>
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<td>85.0</td>
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<td>29.3</td>
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<td>12.0</td>
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<td>62.3</td>
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Sincerity of Effort Testing

Inconsistent and unreliable ▼

Consistent and reliable ▼

CORA Physical Therapy
Components of Functional Capacity Evaluations

Sincerity of Effort Testing

It is possible to have consistent yet submaximal effort; therefore, Bell Shape Curve and REG are utilized to determine MAXIMAL effort.

Bell Shape Curve
- Determines maximal effort, not just consistency like MVE
- Positions 2, 3, and 4 should be the strongest, with 1 and 5 being weaker.

Rapid Exchange Grip (REG)
- Determines maximal effort with MVE.
- Administered at the strongest MVE position and is considered maximal if it is less than MVE lbs for strength.
Components of Functional Capacity Evaluations

Sincerity of Effort Testing

- Pinch Grip Tests
  - Key, Tip, and Palmar
  - MVE with pinch testing
  - COV = hand grip
  - Key strength should be higher than tip pinch.
    - Determines maximal effort vs consistent effort

- Static Strength Tests
  - Horizontal strength changes
Components of Functional Capacity Evaluations

Purpose/Objective
- Clear the client for functional testing
- Quantify physical impairments
- To test for inconsistencies
  - Cogwheeling
  - Breakaway
  - Total Extremity Weakness

Primary Objective
- Assess the area of injury for any limitation which may prohibit functional performance

Secondary Objective
- To observe range/strength throughout testing and note any inconsistencies from ROM/MMT testing to functional applications which involve the same joint motion.

Tests:
- Range of Motion
- Manual Muscle Grade Testing
- Joint Stability
- Sensation Testing
- Regional Neurological Testing
- Waddell’s Non-Organic Signs (lumbar)
- Volumetrics and Edema Assessment
Components of Functional Capacity Evaluations

**Cardiovascular Assessment**

**Pre and Post BP and HR**
- Contraindications for Testing and or Exercise

**Single Stage Treadmill Test**
- Determines client’s MET level
- MET level provides a safe working PDC level for CV status

**Met Level = \( \frac{V_{O2\ max}}{3.5} \)**

Ranges of MET levels for PDC:

<table>
<thead>
<tr>
<th>Physical Demand Level</th>
<th>Occasional</th>
<th>Frequent</th>
<th>Constant</th>
<th>Approximate Energy Required (METS)</th>
</tr>
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<tbody>
<tr>
<td>SEDENTARY</td>
<td>0-10 lbs.</td>
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<td>7.6-9.0</td>
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<td>Over 100 lbs.</td>
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<td>Over 9.0</td>
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Components of Functional Capacity Evaluations

Sitting, Standing, Walking, Kneeling, Crawling, Reaching, Stooping/Bending, Crouching/Squatting, Climbing (Stairs/Ladders), Balancing, Functional Movement, Hand and Foot Controls, Fine Motor Manipulation

- Uses Dictionary of Occupational Titles for determination of Frequency Tolerance if job description is not provided.

Definition of Positional Frequency (per DOL)

Occasional 1-33% or 1-100 Reps
Frequent 34-66% or 101-500 Reps
Constant 67-100% or >500 Reps

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Component of Functional Capacity Evaluations

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<th>Positional tolerances/Non-material handling</th>
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{Tall Kneel}

{Short Kneel}
Component of Functional Capacity Evaluations

Positional tolerances/Non-material handling

← ½ kneel modification.

Enables individuals with ↓ AROM of knee or ankle to work at lower levels.
Components of Functional Capacity Evaluations

Positional tolerances/Non-material handling

←Crouching/squatting→
Inability to squat/crouch directly correlates to lifting from the floor with unsafe body mechanics.
Components of Functional Capacity Evaluations

Positional tolerances/Non-material handling

← Modified high squat/crouch.

Correlates with modified lifting →
Components of Functional Capacity Evaluations

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Purpose/Objective:
- Determine lifting, carrying, pushing, pulling tolerances on an occasional and frequent basis
- Use lifting abilities to determine current physical demand category
- Lifting from various levels, carrying, pushing, and pulling.
  - Bilateral and unilateral (when applicable).
Components of Functional Capacity Evaluations

Material Handling

Lifting, Floor to Waist
Components of Functional Capacity Evaluation

Material Handling
Components of Functional Capacity Evaluation

Non-material handling → Material handling Correlation

← Crouching/squatting

= ability to lift from floor safely with good body mechanics →
Components of Functional Capacity Evaluation

Material Handling
Components of Functional Capacity Evaluation

Material Handling
**Physical Demand Categories**

**Determined using the Dictionary of Occupational Titles (DOT)**

- Developed in mid 1930s in response to the establishment of Federal-State Employment Service
- Uniform Occupational language
- 9 digit occupational code
- Used to determine material handling capabilities and RTW strength requirements

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## Physical Demand Categories

### Sedentary:
- Sitting most of the time
- May involve walking/standing for brief periods of time

**Lifting**
- Occasional up to 10 lbs (0-10#)
- Frequent Negligible
- Constant Negligible

### Light:
- Walking/standing frequent
- Constant sitting with use of arm/leg controls

**Lifting**
- Occasional up to 20 lbs (0-20#)
- Frequent up to 10 lbs
- Constant negligible

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- 1 Rep every 15 min

**FREQUENT**
- % of Time: 34%-66%
- ~Reps 100-500
- 1 Rep every 5 min

**CONSTANT**
- % of Time: 67%-100%
- ~Reps 500+
- >1 Rep every 5 min
## Physical Demand Categories

### Medium:
- Physical Demands in excess of light requirements

**Lifting**
- Occasional 20-50 lbs
- Frequent 10-25 lbs
- Constant up to 10 lbs

### Heavy:
- Physical Demand in excess of those for medium work

**Lifting**
- Occasional 50-100 lbs
- Frequent 25-50 lbs
- Constant 10-20 lbs

### Table: Physical Demand Levels

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CORA Physical Therapy
Physical Demand Categories

**Physical Demand Categories**

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**Heavy vs Very Heavy**

**Heavy**
- Physical Demand in excess of those for medium work

**Lifting**
- Occasional 50-100 lbs
- Frequent 25-50 lbs
- Constant 10-20 lbs

**Very Heavy**
- Physical Demand in excess of those for heavy work

**Lifting**
- Occasional >100 lbs
- Frequent >50 lbs
- Constant >20 lbs

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| MEDIUM                 | 21-50 lbs.   | 25 lbs.    | 10 lbs.    |
| HEAVY                  | 51-100 lbs.  | 50 lbs.    | 20 lbs.    |
| VERY HEAVY             | Over 100 lbs.| Over 50 lbs.| Over 20 lbs.|
Components of Functional Capacity Evaluations

New ADAAA
- Avoid generalization of abilities and test specific essential job demands for each occupation
- Individualized assessment

Job Specific
- Determined with job site analysis and included on updated job descriptions
- Ex: Certified Nursing Assistant (CNA)/Caregiver
  - Testing ability to perform patient transfers with 50# (per DOT) vs floor to waist 50# lift.
Providing Recommendations/Modifications

- Work Conditioning/Work Hardening
- Orthotics
- Body Mechanic Training
- Continued physical or occupation therapy
- Vocational rehab
- Providing RTW Status
- Compare job function to current functional abilities
- Assess cost effective modifications
- Assess current PDC for new job capabilities
- Set functional limitations/restrictions to prevent re-injury
  - Unable to perform low level crouching/squatting without UE support; therefore, lifting from lower levels is limited to never. Client able to safely perform high level squat/crouch and can safely lift from 8in to waist.
  - Bending/stooping is limited to occasional (1-33% of workday).
Providing Recommendations/ Modifications

What caused the limitation or restriction?
- Possibly past medical history/previous injury
- Possible deconditioning/poor endurance due to being out of work and being sedentary for long periods of time?

Does the FCE have to be the end-all, be-all for permanent work restrictions?
Legal Defensibility

Producing reliable and valid testing protocols are essential in determining ability to perform functional tasks on a safe and dependable basis.

Increasing legal defensibility:

9 Factors

- Physical Demand Analysis (PDA)
- Protocol Selection
- Standardized Protocols
- Cross Validation
- Customization
- Accuracy
- Equipment Calibration
- Consistent Training
- Case Law and employment and disability Law knowledge
Symptom Magnification and Malingerers

Malingering:
- Malingering is a medical term that refers to fabricating or exaggerating the symptoms of mental or physical disorders for a variety of "secondary gain" motives, which may include financial compensation (often tied to fraud); avoiding school, work or military service; obtaining drugs; getting lighter criminal sentences.
- People malinger for personal gain often complain of chronic pain which objective tests can find no physical cause.

Symptom Magnification:
- Conscious or sub-conscious behavioral pattern where the individual’s subjective reports of symptoms are inconsistent with the known impairment.
- Individual exhibits tendency to under-rate their abilities and/or over-state their limitations.
- Measured through assessment of observed functional performance as compared to subjective reports of the limitations.
Why Do Patient’s Magnify Symptoms?

Low Job Satisfaction
Adverse Employee-Employer Relations
Ongoing Litigation
Personal Gains
Unsatisfied with overall care
Psychosocial behaviors

Observing for Symptom Magnification:
• Noted inconsistencies in treatment
• Limited compliance with past rehabilitation
• Evidence of positive Waddell signs
• High pain focus
• Self-limiting behavior

Objective of Intake Assessment:
Primary Objective
• Gather information to determine which components of the assessment would be appropriate to administer

Secondary Objective
• Observe the client’s functional abilities
  • Example: Sitting while completing paperwork

CORA Physical Therapy
Functional Restrictions & Limitations

Client’s high pain focus and self-limiting behaviors played a large role in today’s FCE. Mr. Sample terminated all material handling testing (and a majority of non-material handling tests) due to subjective reports of high pain (13-20/10 low back and R LE pain per NPRS) without appropriate physiological/biomechanical responses being noted: no labored breathing, no shaking/tremors, no sweating/pallor, and no breakdown in body mechanics/body substitutions. It is therefore believed that Mr. Sample is capable of functioning safely at a higher level than is indicated herein. Despite subjective reports of high pain, client did not have difficulty communicating, concentrating, and was able to continue to stand after terminating a majority of tests. Throughout FCE, all movements were accompanied by groaning/moaning and facial grimacing; however, unable to determine if verbalizations and facial expressions were appropriate to effort, due to positive disproportionate responses noted on Waddell’s. Special note to 5/5 positive Waddell’s signs which denote symptom magnification as well as 43/78 on McGill Pain Questionnaire and 80% Oswestry Low Back Questionnaire which denote a high pain focus. Mr. Sample’s sincerity of effort testing results also indicated evidence of inconsistent and/or sub-maximal effort given.

Several inconsistencies in client’s subjective reports vs observed behaviors/movements were also noted throughout FCE. Despite reports of R LE pain, client ambulates with his cane on his right side thus increasing weight bearing through the painful limb. Client was also frequently observed with increased weight shifting onto R LE throughout testing (kneeling and standing) and occasionally when ambulating without cane, client was observed with increased stance phase on R LE. Also noted lumbar flexion WFL during testing despite limited AROM measurements.

- 14in to Waist: 10 lbs Occasional
- Waist to Shoulder: 10 lbs Occasional
- Bilateral Carry: 10 lbs Occasional
- Push/pull: 50 lbs Occasional
Sample FCE for Review

Recommendations & Accommodations

Based on demonstrated function, Mr. Sample can work at the Light PDC (as outlined above) with the following accommodations; however, as noted throughout FCE, due to insincere effort, a high pain focus, and self-limiting behaviors, the results of this FCE are not a reliable indication of client’s true functional capabilities. The below accommodations are based on the client’s termination of functional tests (due to subjective reports of pain) without appropriate physiological/biomechanical responses being noted:

- Bending/stooping limited to occasional.
- Walking limited to occasional (can perform without cane on an occasional basis safely).
- Kneeling limited to never.
- Despite client self limiting to the Light PDC level, there is no physiological/biomechanical evidence that he would be unable to work a full 8hrs at this time (no significant positional limitations, no noted decreased endurance, and no pain management techniques utilized throughout FCE).

- Physician can use entire range of clinical skill and judgement along with objective testing to determine if the subjective reports are plausible and consistent with the impairment being evaluated.
Functional Restrictions & Limitations

Mr. Sample put forth great and sincere effort with today’s FCE; however, due to functional deficits of right hand/fingers, was unable to function safely above the Light PDC level. Noted decreased right grasp/pinch strength on static strength testing, below functional AROM of 2nd-4th digits, gross 4-/5 strength, as well as hypersensitivity of 2nd -4th DIPs. Material handling activities were either terminated or modified by clinician when an unsafe decline in right grip along with increased body substitutions/decline in body mechanics were noted. The below material handling activities were performed slow and controlled with excellent body mechanics. Mr. Sample can safely lift/carry 11# above waist height bilaterally with larger wooden box; however, to lift to the full Light PDC level (20#) requires modification of lifting smaller non handled objects. Due to hypersensitivity of 2nd-4th digits, noted consistent compensatory techniques (utilizing thenar/hypothenar eminence for weight bearing as well as utilizing 1st and 5th digits for grasping) to increase functionality of R UE.

- Floor to Waist: 21 lbs Occasional
- Chest to Overhead: 11 lbs Occasional for Box and 20 lbs Occasional for smaller/easier to grasp objects (kettlebell)
- Bilateral Carry: 11 lbs Occasional for Box and 20 lbs Occasional for smaller/easier to grasp objects (kettlebell)
- L Unilateral 12in to Knuckle: 50 lbs Occasional
- Waist to Shoulder: 11 lbs Occasional for Box and 20 lbs Occasional for smaller/easier to grasp objects (kettlebell)
- Push/Pull: 100 lbs Occasional
Recommendations & Accommodations

Mr. Sample can work at the Light PDC level with the following modifications/accommodations:

- Larger items/box lifts are limited to 11 lbs above waist height.
- To lift to the full Light PDC (11-20 lbs) above waist and carrying; client is limited to lifting smaller non-handled objects only.
- For performing winding up/down landing gear- modified to L UE only.
- Client can grasp/handle on a constant basis with L UE without modification; however, with R UE requires the ability to utilize compensatory techniques on R UE (consistent with decreased AROM and hypersensitivity).
## Sample FCE for Review

Check out the SC PRIMA website for downloadable full versions

<table>
<thead>
<tr>
<th>Essential Job Demand</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tarping load. - Client is required to place ~100 lb tarp overhead to cover load on an occasional basis.</td>
<td>Not Met</td>
</tr>
<tr>
<td>Winding gear. - Client is required to wind up/down landing gear on an occasional basis.</td>
<td>Met with Restrictions</td>
</tr>
<tr>
<td>Chain load down. - Client is required to carry/place ~100 lbs chains on flatbed to secure load on an occasional basis.</td>
<td>Not Met</td>
</tr>
<tr>
<td>Binding down load. - Client is required to utilize ~100 lbs of downward force to utilize &quot;cheater bar&quot; to bind down chains to secure load.</td>
<td>Not Met</td>
</tr>
<tr>
<td>Shift through 10-13 gears manually w/R hand along with pulling up transfer axel button. - Client is required to utilize right hand to shift through 10-13 gears on a frequent basis, along with pressing transfer axel button (with 3-4th digits) to reach higher gears on truck.</td>
<td>Not Met</td>
</tr>
</tbody>
</table>
Panel Discussion