

Functional Capacity Evaluation

Is the Data Accurately Representing Abilities?



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PHYSICAL THERAPY



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An FCE needs to be objective, non biased, evidence based in order to be fair to the injured worker and referral source.

The goal is to obtain a “valid” FCE



Evaluating the Quality of FCE

- Objective
- Does it explain why the patient or tasks were terminated and what data points were collected for each task?
- Is there cross validation of safe efforts throughout the testing procedure?
- Is it an accurate representation of client's abilities?

FCE Purpose- Provides objective measurement to assess Capabilities and Limitations

- The report needs to answer the referral question.
- 4-5 hour test is required to assess safe capabilities.
- Is the patient giving effort that is maximum or near maximum effort in order to accurately determine:
 - Work Status
 - Work Placement
 - Settlement
 - Determine next course of action
 - Surgery
 - Other medical interventions
 - Missed diagnosis

A physician should avoid placing arbitrary restrictions on abilities without objective assessment and measurement

Who Should Perform an FCE?

- Select a provider who has the clinical expertise and can legally provide a clinical opinion
 - Analyze, interpret and conclude by answering referral question
- Provider needs to be objective/non biased
- Provider needs to have knowledge to consider all components (medical history, current medical condition, etc)
- Provider should have experience

Who Should Perform an FCE?

PTA/COTA

Occupational
Therapist

Athletic
Trainer

Ergonomist

Physical
Therapist

Kinesiologist

Exercise
Physiologist

The FCE needs to be defensible in court

A Few Words on Provider Selection?

- Select a provider who has experience (when in doubt, ask)
- Select a provider who has clinical expertise and can legally provide a clinical opinion
- Select a provider who is objective/non biased
- Select a provider who utilizes established sincerity of effort testing protocols and can defend their results

When possible, do not leave it up to referral networks to make the decision for you – FCEs and FCE providers are not all the same!

FCE Admission Criteria

Physical Readiness

- Client is medically stable (i.e., resting BP < 160/100, pulse < 100)-May often cause a delay in ability to perform test
- Pain has stabilized
- Inflammation and/or swelling has stabilized
- Soft tissue dysfunctions have been addressed (i.e., trigger points, abnormal muscle tone)



FCE Approaches

- **Psychophysical Approach:**

Subjective complaints determine progression of tolerance testing.

It is not based on the presence or absence of mechanical changes or deficits witnessed.

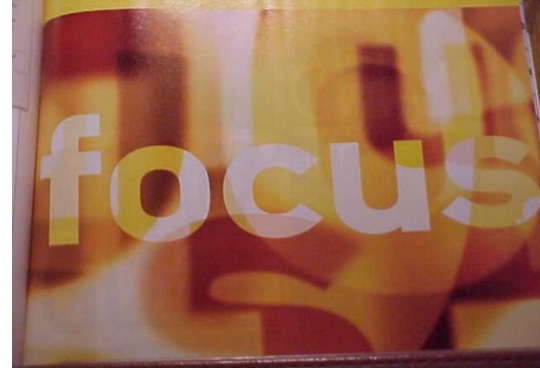
Client is in charge of the testing process.

- **Kinesiophysical Approach: Athletico**

Mechanical changes or deficits need to correlate with the subjective pain complaints.

Evaluator determines stopping point based on observation of mechanical changes or documents kinesiophysical signs

Self Term: no observation of kinesiophysical signs



Different Types of FCE's (should be part of the referral question)

- Baseline FCE
 - Every tolerance is tested to maximum safe ability
 - General job circuit to assess endurance and confirm safe capabilities
- Job-specific FCE
 - Test to job criteria
 - Work specific job circuit
- Upper Extremity FCE
 - All lifting tolerances tested
 - Squatting, kneeling, bending, stooping, sitting is not assessed.
 - Should call provider



Why is a M-S Evaluation important as part of an FCE



- Should be part of all FCEs- Check with your provider
- Determines whether client meets admission criteria
- MS evaluation allows Evaluator to distinguish between limitations in performance due to impairment or lack of effort without any MS findings to support the observation – **Is there a correlation?**
 - Evaluator may not know why (fear, anxiety)
 - Ex: Knee diagnosis: may have difficulty getting into a full squat due to limitations in ROM. (FCE evaluator would not know this if they did not measure it during a MS evaluation)
- Assists in predicting functional performance
- Client may need “good” PT before proceeding

Sincerity of Effort Testing during an FCE – What is it and why is it so important

WHAT IS IT? - Sincerity of effort testing (sometimes referred to as validity of effort or Consistency of Effort) is used as part of a functional capacity evaluation to determine if a client is putting forth maximum voluntary effort

WHAT ISN'T IT? – A method utilized to identify “fakers” and/or “malingerers”

SOE Testing – Why is it important?

Let's take a look at a case study...

- Two separate providers performed FCEs, both were considered valid
- The first FCE found the claimant to be capable of lifting and carrying 20 lbs. at a maximum – Light Physical Demand Level
- The second FCE found the claimant to be capable of lifting and carrying 10 lbs. at a maximum – Sedentary Physical Demand Level

SOE Testing – Why is it important?

- Utilizing the information from the two separate FCEs, a “Transferable Skills Analysis” was performed by a vocational expert
- Utilizing data from the first FCE the claimant was found to have a loss of skilled and semi-skilled occupations of 57.3% and a loss of unskilled occupations of 52.2%
- Utilizing data from the second FCE the claimant was found to have a loss of skilled and semi-skilled occupations of 94% and a loss of unskilled occupations of 99.9%

SOE Testing – Why is it important?

- The first FCE performed utilized a battery of SOE testing to determine that the client performed maximally throughout testing while the second FCE relied upon a purely psychophysical approach (client controlled the stopping points during all test activities)
- While both tests were “valid” only the first FCE accurately identified the client’s true physical abilities

Good Sincerity of Effort testing is the primary requisite for conducting an FCE that yields accurate information

SOE Testing – Three Key Effort Metrics

- Reliability of Pain – Descriptions or expressions of pain or symptomatology that subscribe to the scientific laws of living organisms
- Consistency of Effort – Reproducibility - or the likelihood that an effort may be copied, duplicated, or produced as a close imitation, in a series of trials.
- Quality of Effort - Degree - or the extent, level, or scope of a subject's volitional exertion in maximal or repetitive testing.

SOE Testing – Reliability of Pain

Do client's subjective complaints of pain correlate with observed functional movement patterns?



Pain at 90 degrees during physical exam



No reports of pain during functional tasks

SOE Testing – Reliability of Pain

Do subjective complaints of pain appear to be in proportion with objective findings of dysfunction and/or activities being performed?

- Example: 10/10 resting pain while calmly sitting during interview process— **Functional Pain Scale**
- Example: States that they cannot stand for more than 10 minutes but performs standing activities for 2.0 consecutive hours without change of position
- Example: Reports of intense pain during distraction based testing (axial loading, simulated trunk rotation, etc.)- **Waddells**
- Evaluators use a battery of pain and activity questionnaires to assess their perception of their pain and activity

Activity and Disability Questionnaires- Why?

- Assists the therapists and medical team to evaluate the total person.
- Used to assess if patient might have psychosocial factors that may be impeding progress
- Allows for physicians to appropriately treat patient and set clear expectations
- Is the patient's perception of their disability impacting response to medical treatment or an obstacle in obtaining a good outcome
- Allows therapist to fully evaluate sitting/standing tolerance –(distraction approach)

Example: Pain Diagram

- Scoring:
 - *Ransford* (Example – 15)
 - (lumbar diagnoses) < 3
 - *Pragmatic*
 - non-lumbar, <2/3 of the following = Expected
 - multiple modalities;
 - glove/stocking;
 - unrelated pain areas


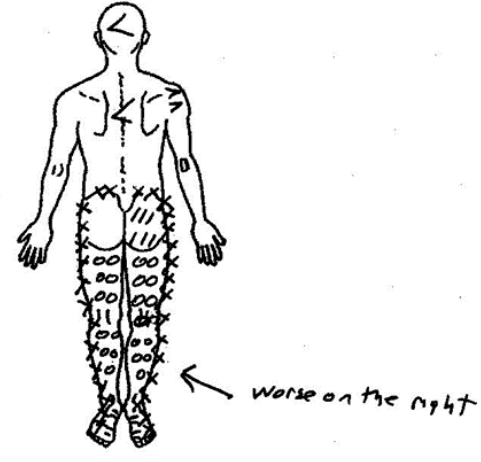
PAIN DRAWING

Name: Joe D Today's Date: 3/24/05
 Date of Birth: 7/5/70 Examiner: V. Zucc.

TELL US WHERE YOU HURT

Please read carefully:
 Mark the areas on your body where you feel your pain. Include all affected areas. Mark areas of radiation. If your pain radiates, draw an arrow from where it starts to where it stops. Please extend the arrow as far as the pain travels. Use the appropriate symbol(s) below.

Ache >>>> >>>>	Numbness ---- ----	Pins and Needles o o o o o o o o
Burning x x x x x x x x	Stabbing //// ////	Throbbing ---- ----

SIGNATURE: A. Joe D

Parker, H., Wook, P. L., Main, C. J., The use of the pain drawing as a screening measure to predict psychological distress in chronic low back pain, *Spine* 20, 1995.
 Ohnmeiss, D. D., Repeatability of pain drawings in a low back pain population, *Spine* 25(8), 2000.
 Lacey, R. J., Lewis, M., Jordan, K., Jinks, C., Sim, J., Interrater reliability of scoring of pain drawings in a self-report health survey, *Spine* 30(16), 2005.

PRE-TEST Ransford score-

SOE Testing – Consistency of Effort

Is ROM consistent throughout the course of the evaluation?

- pre-test v. post-test ROM, ROM during functional tasks, multiple trials of ROM (co-efficient of variation > 15%), etc.



SOE Testing – Consistency of Effort

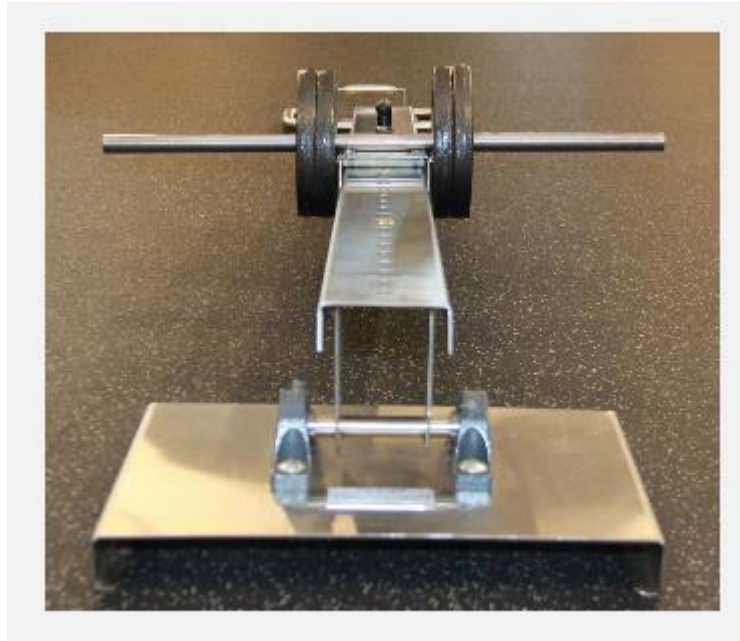
Is there consistency between repeated trials of material handling?

- Multiple trials throughout testing is best approach
- Recommend blinding patients to weight when possible
- Can cross reference with activity circuit
- XRTS Lever Arm

XRTS lever Arm

- XRTS Lever Arm
 - Repeated measures, distraction based test with multilayered statistical analysis
 - A series of baseline lifts are compared to lifts performed on the lever arm-(distraction based)
 - Heavy looking loads can be light, light looking loads can be heavy
 - Compliant subjects will have very little variation, non-compliant subjects will display a large variance between comparative lifts

XRTS



XRTS Lever Arm – Example Results

Activity	Baseline Lifts (lbs.)	Lever Arm Lifts (lbs.)	Percent Change
Left unilateral lift 17.5” to waist	10.00	30.38	203.80%
Bilateral lift 10” to waist	10.00	30.38	203.80%
Bilateral Lift 15” to waist	12.50	30.38	143.04%
Bilateral lift 20” to waist	15.00	30.38	102.53%
		Average % Change	163.29%

SOE Testing – Consistency of Effort

Is Grip testing reproducible during repeated trials

- Rapid Exchange Grip, Co-efficient of Variation, Bell Curve are most commonly used – Some FCEs utilize one of these tests while others may use all three – varying degrees of accuracy – if using, would recommend employing more than one of these tests to gain a better understanding of effort
- XRTS Hand Strength Assessment –(Simultaneous bilateral hand strength Assessment
- Research demonstrates 99.5% accuracy
 - Multiple trials of unilateral and bilateral gripping and pinching
 - Level of distraction added throughout
 - Multilayered statistical analysis of effort

Question – Are all patients appropriate for hand strength testing?

SOE Testing – Quality of Effort

Did client exhibit kinesiophysical signs during the majority of tasks indicative of maximum effort?

- Kinesiophysical signs are observable indications of effort
- While these signs are not present universally and vary from individual to individual, a subject will demonstrate changes in body mechanics as they near mechanical breakdown

Evaluate HR and changes in posture/mechanics with activity during objective material handling testing

Material Handling:

- Floor to Waist
- 12" to Waist
- Waist to Shoulder
- Shoulder to Overhead



	Maximum Effort	Heavy Effort	Low Effort
Muscle Recruitment	Bulging neck flexors, upper trapezius, deltoids, rhomboids	Pronounced recruitment of accessory muscles	Early recruitment of accessory muscles
Base of Support	Very solid base	Wider base	Natural stance
Posture	Marked counterbalancing	Increased counterbalancing	Beginning of counterbalancing
Heart	Substantial increase in heart rate	Greater increase in heart rate	Minimal increase in heart rate
Control and Safety	Safe; unable to control with increased weight	Begins to use momentum; difficult to control	Smooth movements
Pace	Slowest pace	Slower pace	Comfortable pace

SOE Testing – Quality of Effort

Did Client's heart rate increase over resting on majority of tests which is consistent with displaying acceptable effort.

- Research reports a 25 to 50% increase over resting heart rate indicates minimally acceptable to moderately high physical exertion
- Not recommended for use with client's on certain medications (Beta Blockers)

Job Simulation Circuits

- Performed to assess tolerance to perform tasks outside of standard lifting parameters
- Job Specific
- Functional Activity Circuit
 - Usually 30-60 minutes
 - Verifies weights observed during formal tolerance testing, assesses endurance, allows evaluator to make recommendations for work tolerances.



Now that we are all experts...Let's discuss best practices

- Good sincerity of effort testing does not rely on opinions of the evaluator only
 - While FCEs are an art and a science, the emphasis should be on the science as much as possible
- Good sincerity of effort testing does not rely on a very limited number of tests/observations
- Good sincerity of effort testing is clearly explained in the report – it shouldn't be a secret!
- Good sincerity of effort testing will have an established track record of being successfully defended in the courtroom

Main Question: How do you know if the client is exerting “good effort” during an FCE which is accurate representative of their abilities?



- Skill of evaluator-ask !!!!!
- Battery of tests-Research based criteria
- Observation throughout FCE
 - Walking into the facility
 - Sitting tolerance while filling out paperwork
- Pain and Activity Questionnaires
 - Assess clients perception of their pain and disability

Main Question: How do you know if the client is exerting “good effort” during an FCE which is accurate representative of their abilities?



Objective testing

- Musculoskeletal exam
- Function testing
- Circuit/Cross Reference lifting
- The greater the number of battery of tests, the more likelihood to observe consistent behaviors.
- Collect as many data points as possible
- Requires a thorough knowledge of what is expected for the condition in question and the capacity to observe or elicit what is expected and what is not.

Expected & Unexpected Results

Every activity that is performed in an FCE should be evaluated against a metric. --
FCEs should be objective and non biased.

- Expected results =
 - What the therapist should see if the patient is giving good effort and there are objective findings to substantiate pain ratings or there are objective findings to substantiate acceptable, observed quality of effort
- Unexpected Results =
 - When Client is not giving full effort
 - there are no kinesiophysical signs or Mechanical Changes
 - Terminates activity without increase in pain or objective findings
 - Response does not correlate to diagnosis

Value of Results

Decision Making Process



Maximum effort: Consistent Performance , Acceptable Effort

- Can accurately define functional performance level- PDL
- Determine if further care is appropriate as identified in the musculoskeletal exam
- Misdiagnosed?
- Triage to work conditioning
- Job coaching to return to work
- On site job analysis
- RTW –
- Case closure

Not consistent –Unacceptable effort and reliability is in question/invalid

- Objective findings do not correlate with subjective complaints
- Physician to determine medical course of action
- Accurate physical demand level is unable to be obtained due to lack of maximum effort.
- PDL level unable to be determined
- Inform the claimant
- IME
- Return to Work
- Case Closure

Every Job Falls Into a Physical Demand Category of Work and PDL Should be Stated in Every Report.

What is “Light, Medium, Heavy...?”

Physical Demand Level	Occasional 0-33% of day 1-12 per hour, or up to 100/day 1 lift/5 min	Frequent 34-66% of day 13-60 per hour, or 100-500/day 1 lift 1-5 min	Constant > 66% of day > 60 per hour, or >500/day 1 lift/min
SEDENTARY	Up to 10 Pounds	Negligible	Negligible
LIGHT	11-20 Pounds	Up to 10 Pounds	Negligible
MEDIUM	21-50 Pounds	11-20 Pounds	Up to 10 Pounds
HEAVY	51-100 Pounds	21-50 Pounds	11-20 Pounds
VERY HEAVY	Over 100 Pounds	Over 50 Pounds	Over 20 Pounds

So Now What?



Reader has to be able to interpret the report

Interpret information,
Assess Overall Performance

What are the
recommendations?

Was referral question
answered?

What is important:

Can the end user interpret the report?



Report needs to be end user friendly-- communicate information easily

Dear XXXx MD,

Thank you for the referral of Kathleen Test to Athletico's Algonquin center. Per your request, a Job Specific Functional Capacity Evaluation was performed on 10/02/2018 07:45 AM.

Summary of Client's Performance: **Invalid/Inconsistent Performance**

Evaluator cannot accurately identify the client's true function or restrictions. Data obtained is not a valid representation of client's true physical abilities and suggests the client could have performed at markedly higher levels than willing during functional testing. Defer to physician to accurately identify restrictions if physician deems it necessary based on the assessment of patient, treatment outcome and review of relevant medical findings. Performance will not be compared to job demands due to lack of consistent effort.

Effort was determined to be **Invalid/Inconsistent Performance** secondary to:

- Grip testing was not reproducible during repeated testing.
- Subjective complaints of pain are out of proportion with objective findings of dysfunction.
- Subjective complaints of pain do not correlate with observed functional movement patterns.
- Client displayed exaggerated pain behaviors frequently during testing.
- Kinesiophysical signs were absent in a preponderance of tasks which is indicative of client displaying less than maximal effort.

Job Demands: Client met 56% (9/16) reported job demands required to function as a Laborer.

Recommendations

Client is functionally employable. Given the fact that the results reveal inconsistent performance, the client is capable of greater functional abilities than demonstrated during the FCE. The overall results of this FCE do NOT represent a true and accurate representation of the client's functional performance.

Physical Demand Level

Client demonstrated capabilities and functional tolerances to function within the at least medium physical demand level. Due to inconsistencies, his maximum abilities cannot be accurately stated in this report and this report indicates a minimal level of function

Job demand level is delineated by 50 pound lift. The job description was provided by Employer.

Significant Musculoskeletal Findings

Ms. Test presents with moderate R knee swelling, decreased patellar mobility, decreased knee flexion and

Main Limiting Factors

Client is functionally limited in squatting, kneeling and walking pace is slow. Client's functional pain scale and Borg Rating are not consistent with behavior exhibited and not proportional with the task performed. Client does demonstrate functional limitations, and did demonstrate increased swelling and decreased ROM post test. His total tolerance is not known due to self termination of lifting and functional tasks. Client's gait was consistently antalgic throughout evaluation.

Job Demands Match Table

Activity	Observed Level	Job Demand	Job Demand Met
Floor to Waist Lift Occasional	37.50#	50.00#	Unmet
12" to Waist Lift Occasional	33.00#	50.00#	Unmet
Floor to Waist Lift Frequent	13.00#	25.00#	Unmet
Forward Reach	no functional limitations observed	Frequent	Met
Overhead Reach	no functional limitations observed	Frequent	Met
Bending	Frequent	Frequent	Met
Squatting	Frequent	Frequent	Met
Repetitive Kneeling	Avoid	Occasional	Unmet
Sustained Kneeling	Avoid	Occasional	Unmet
Crawling	Not Tested	Occasional	Unmet
Sitting	No functional limitations observed	Occasional	Met
Standing/Walking	Frequent	Constant	Unmet
Job Simulation Circuit Frequent	Frequent	Frequent	Met
Dynamic Balance	Constant	Frequent	Met
Static Balance	No functional limitations observed	Frequent	Met
Grip	No functional limitations observed	Constant	Met

FCE Tips to Success

- Physician lifting restrictions should be lifted during the FCE. Function should be assessed on maximum ability, not to the level of restriction placed on patient by the physician
- Evaluator/NCM should make sure a conversation occurred with physician so maximum ability can be assessed.
- Client needs to be informed by all parties to give their full best effort
- Utilize a detailed Functional Job Description

Beware of the following:

- Know your providers
- Do not have FCE performed by treating PT



Upper extremity Injury-avoid placing whole body restrictions

- Evaluator should assess ability of involved extremity, but overall assess ability to use the uninvolved arm to compete essential functions.
- Should not limit overall performance of the individual if tasks can be performed with the uninvolved arm.
- --This is why it is important to speak to the referral source before the FCE and answer any referral question.

Static testing is not an indicator of physical strength. Static testing cannot determine functional ability.

Static testing should only be used for Consistency of Effort testing to obtain CoV

During the assessment process, [REDACTED] performed in the MEDIUM to HEAVY physical demand level with regard to static strength testing and in the MEDIUM physical demand level for dynamic strength testing for lifting to bench height and in the MEDIUM physical demand level for dynamic lifting to shelf height. Therefore, from a strength perspective, recommend consideration be given to restricting Mr. [REDACTED] to those jobs or job tasks that are at or below the MEDIUM physical demand level. Therefore,

Know what and who you are referring to?

Static Lift:	
Knuckle Height	39.8lbs. (MEDIUM)
Bench Height - 36"	31.9lbs. (MEDIUM)
Ankle Height - 14"	55.8lbs. (HEAVY)
Shoulder Height	42.2lbs. (HEAVY)

Independent FCE audits

- Peer FCE review by experienced PT
- Review of pertinent documentation
- Review of methodology of FCE
- Specific questions addressed
- Inconsistencies Identified
- Bibliography of relevant research available



GONE
WORKIN'