Understanding and Interpreting an FCE

ATHLETICO
PHYSICAL THERAPY

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

Other Common Test Names

- Work Tolerance Screening (WTS)
- Functional Abilities Evaluation (FAE)
- Functional Capacity Assessment (FCA)
- Work Capacity Evaluation (WCE)

FCE Purpose- Provides objective data to assess Capabilities and Limitations

- The report needs to answer the referral question????
- 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 Physican should avoid placing arbitrary restrictions on abilities without objective assessment and measurement

FCE

- Assesses
  - Validity/Reliability
  - Consistency of Effort
  - Quality of effort

PROBLEM: What do we do when the patient does not give “good” objective effort

Who Should Perform an FCE?

- May be dependent on state practice act guidelines
- Needs to be 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-Should not be “treating” clinician
- Provider needs to have knowledge to consider all components (medical history, current medical condition, etc)

Who Should Perform an FCE?

The FCE needs to be defensible in court

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Indicators for FCE

Medical

- Job involves repetitive work task
- Job involves Medium to Heavy work
- Complaints of pain with no substantiated clinical findings
- Plateau in PT/OT
- MedicaI(MMI)
- Decreased work tolerance

Behavioral

- Off from work 3 months or more
- Loss of past work habits and self-confidence
- Fear of re-injury
- Negative attitude about returning to work
- Questionable legitimacy of injury
- Suspected sub-maximal effort
- Lack of progress in physical/occupational therapy without clear objective reasoning
- Lack of participation in therapy

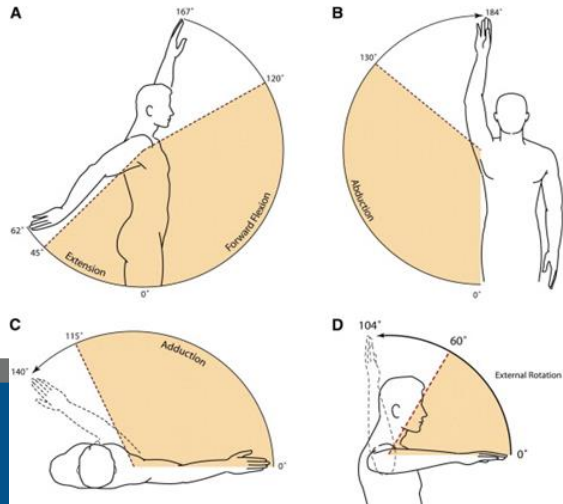
Legal

- Objective documentation needed to return to work
- Return to work will require job modification
- Conflict of medical opinion about worker's status

Patients referred for FCE & WCE need to medically stable:

- Resting HR greater than 100 bpm
- Blood pressure not greater than 160/100
- Pain has stabilized
- Able to tolerate activity-2 hours
- Soft tissue healing will not jeopardized with maximum tolerance testing

Stages	Systolic	And/OR	Diastolic
Prehypertension	120-139	OR	80-89
High Blood Pressure Stage 1	140-159	Or	90-99
High Blood Pressure Stage 2	160 or higher	Or	100 or higher




focus

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 (previously Accelerated)**

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

Kinesiophysical Approach cont'd.

- Evaluator Determines stopping point
  - Based on the observation of mechanical changes which should be observed when max effort is given.
  - Based on our medical knowledge of biomechanics, diagnosis, physiology, anatomy, & cardiovascular endurance
- If Client terminates task before a mechanical change is noted and or kinesiophysical signs are observed, , it can be assumed that maximum effort was not given on that specific task

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

- Baseline FCE
  - Assessment of the functional ability to perform the spectrum of work tolerances related to the physical demand factors of job tasks
  - Best suited when restricted duty is available or RTW to previous job is highly improbable
  - MMI, disability, vocational re-training/assessment
- Job-specific FCE
  - Assessment of the match between the client's functional capabilities and the critical demands of a specific job
  - Answers the referral question - "Can the client return to work to the previous job?"
  - Accomplished by evaluating work tolerances with specific parameters and the use of structured work simulations

Different Types of FCE's Cont.

- UE FCE
  - Initiated with M-S Eval
  - Assessment of only the physical capabilities and tolerances that incorporate UE usage
  - Will not evaluate sitting, standing, stoop, squat, kneel, crouch, etc.

  - The referral source should speak to the therapist upon making the referral so the evaluation is scheduled with the most appropriate therapist.

Value of Providing Job Description for Job-Specific FCE

- Provides accurate parameters for RTW
- Ensures that client will only be assessed on tolerances specific to job
- Ensures that the evaluator will be able to establish recommendations, which are appropriate and reasonable for the job/employer

Name: _____Signature_____Job Title_____
Employer _____Do you have a case manager? _____If Yes, Please provide contact information:_____

LIFTING:

What is the heaviest item you typically lift at work from floor to waist level? _____
How much does it weigh?_____ How often do you lift this item/object? (Please check box)

☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

Are there items you lift which are lighter than above that you lift more frequently to waist level?
How much does it weigh?_____ How often do you lift this item/object? (Please check box)

☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

What is the heaviest item you typically lift at work to shoulder level? _____ How much does it weigh?_____ How often do you lift this item/object? (Please check box)

☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

What is the heaviest item you typically lift to overhead level? _____
How much does it weigh? _____ How often do you lift this item/object? (Please check box)

☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

CARRYING:

Do you carry items with two hands? Yes_____ No _____ Describe Item _____

How much do the items weigh? _____ How far do you carry the item? _____feet

How often do you carry the items? (Please check box)
☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

Do you carry items with one hand? Yes_____ No _____ Describe Item _____

How much do the items weigh? _____ How far do you carry the item?_____feet
How often do you carry the items? (please check box

☐ 1-100 times/day (12/hr) ☐ 101-500 times/day (12-62 lifts/hr) ☐ Greater than500/day (over 62/hr)

PUSH/PULL:

Do you push or pull items at work? _____ If yes, do you use a cart to push or pull items?_____

If you use a cart, describe how much weight is on the cart? _____

Please check the boxes below if you have to get in the positions while at work	0% Never	1-33% of the work day Occasional	34-66% Of the work day Frequent	67-100% of the work day continuous
Squat				
Kneel				
Crawl				
Run				
Climb Stairs				
Climb Ladders				
Above Shoulder Reaching				
Below Shoulder Reaching				

- **Accurate job description is critical**
- **Goal: request a functional job description with job demands at time of initial evaluation**
- **If no job description is available, therapist receives job information from the Injured Worker**
- **Athletico can send a copy of this form to the employer**

ATHLETICO PHYSICAL THERAPY


Need to know if patient can do this task when they return? ---
Job Specific- Need Job Description

Evaluation Process- How long does it take? What is assessed?

- 4-6 hours in duration
- Review medical record—Important to get accurate description of injury and review medical records—(Previous therapy, surgeries, history, etc)
- Pain and activity/disability questionnaires
  - Gain insight to why observed limitations may be disporportionate to objective finding.
- Musculoskeletal evaluation
- Non material handling assessment-repeated movements
- Objective Functional testing-lifting/carrying/job sim
- Repeat testing of 1 & 2 hand lifting performance-throughout FCE –confirms abilities
- Job Simulation Tasks or Functional Circuit-confirms ability previously assessed during the FCE

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

Evaluation: Physical Tolerance Testing-

- Floor to Waist
- 12” to Waist
- Waist to Shoulder
- Shoulder to Overhead

- Non material handling Activities
  - Sitting, standing, reaching, kneeling, squatting, bending, ladder, stairs,
- Balance Assessment
  - Static and Dynamic

Job Simulation Tasks/Functional Activity 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.

How do you know if the client is exerting a "good effort" which is representative of their abilities?

- Skill of evaluator-ask !!!!!
- Battery of tests
- 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

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.

Critical FCE Metrics-Every FCE methodology has internal rating system- No standard

Metrics:

- Consistency of Effort
- Reliability of Pain

/Performance

- Quality of Effort

Most Common

Athletico has 3 areas of objective measurement that is gathered during the assessment. Many testing methodologies combine it into 2

3 Effort Metrics Definitions

- **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.

- **Reliability of Pain-Non-Organic Signs =** descriptions or expressions of pain or symptomatology that do not subscribe to the scientific laws of living organisms

How is Maximum Effort Determined?

- Research is conflicting
- The more measures in an FCE and the experience of the evaluator promotes a more accurate result
  - Cross reference tasks, gross inconsistencies,
  - Multiple methods during testing
- Goal: Objective FCE designed to assess true physical capabilities based on the performance of good and or maximum effort
- 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.

Reliability

Reliability of Pain-Approx 72 criteria if everything is tested (Athletico)

- Pain & Activity Questionnaires
- Observational Findings
  - ROM in MS eval compared to ROM when not directly tested
- Mechanical Changes associated with Functional Pain Increase
- RPE vs HR Comparison

Examples

Is claimant always having difficulty assuming positions of squatting

If limp is consistent throughout the exam

Cross referencing maximum lifting (2 hand lift)

Perception of pain/abilities consistent with performance

Consistency of Effort

- Important to have a battery of objective tests-dispersed throughout FCE
- Research-based tests that can withstand a legal challenge
- Fewer tests contribute to the propensity for inappropriate interpretation
- Consistency of Effort-38 criteria if everything is tested (Athletico)
  - Manual Material handling sequencing-Ex: Occ > Freq
  - CoVs - Spinal Inclinometer, Jamar, & Static Strength testing, pinch
  - Bell Shaped Curve – Jamar, Rapid Grip
- Repeated movements: overhead reach, squatting, bending
- Should observe same behaviors and limitations throughout the test.

Example of inconsistent observation

Consistent ROM noted with different tasks==consistent performance

Quality of Effort

- Quality of Effort--74 criteria if everything is tested (Athletico)
  - 2-3 Kinesiophysical Signs noted which demonstrates good effort-evidence based
  - Heart Rate Variance >25% from Resting Heart Rate
  - Self terminated without clinical objective findings-if client did not attempt, refused, or stopped before any mechanical change noted— Not a quality effort

Kinesiophysical Signs - Quality of Effort

- Muscle Recruitment
- Body Mechanics
- Base of Support
- Counterbalance
- Control & Safety
- Heart Rate

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

- Every activity in an FCE has a purpose.
- Overall results/Performance is analyzed to determine an overall “rating” that classifies performance
- Important to have many tests and not base results on one parameter

Results:FCE Performance Overall Rating-based on Combined Total Effort

Every system has their own internal grading system. What is most important is that testing methodology is consistent and principles are build on evidence based research.

- 80--100% = Consistent Performance/Acceptable Effort
- 70-79.99% = Variable Performance /Questionable Effort
- 0--69.99% = Inconsistent Performance /Unacceptable Effort

Performance Criteria Definitions

- **80-100% -** Consistent Performance/Acceptable Effort indicates that the client's perceived limitations, and return to work confidence are not negatively affecting symptom expression, consistency of effort, reliability of pain, and/or quality of effort. Data obtained is near or equal to the Client's true status. The evaluator is confident in projecting full time work tolerances.

Most Difficult –What do we do?

- **70% - 79.99%** **<u>Variable Performance / Questionable Effort</u>**
- Variable Performance /Questionable effort indicates that the client's perceived limitations and return to work confidence are mildly to moderately affecting symptom expression, consistency of effort, reliability of pain, and/or quality of effort. The client likely could have performed at higher levels than willing during musculoskeletal and functional testing. The client can perform on a full time basis at least at levels identified in this report.

- **0--69.99% <u>Inconsistent Performance / Unacceptable Effort</u>**
- Inconsistent Performance/Unacceptable Effort indicates the Client's perceived limitations and return to work confidence are markedly affecting symptom expression, consistency of effort, reliability of pain, and quality of effort. The client could have performed at markedly higher levels than willing during musculoskeletal and functional testing. Behavioral factors are affecting evaluation results to such a degree the evaluator cannot identify the client's true musculoskeletal status, project full-time work tasks and/or true impairment. **The physician will determine final disposition after review of this report and other relevant medical findings.**


RICHARDSON

So Now What?
Reader has to be able to interpret the report

Interpret information,
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

Thank you for the referral of Cindy TEST_NUM_1 to Athletico's Algonquin center. Per your request a Job Specific Functional Capacity Evaluation was performed on 10/20/2014.

Performance Relative to Job Demands	Performance Analysis
40.91% (9/22 Job Demands Met)	Inconsistent Performance / Unacceptable Effort (41% or 28/69 Expected Responses)

Physical Demand Level

Client demonstrates the physical capabilities and tolerances to function **at least in the Heavy** physical demand level. The physical demand level is determined by a 2 hand occasional lift of 80# 12" to waist and 75# from floor to waist level and 2 hand frequent waist to shoulder lift of 30#.

Job description was provided by employer. The physical demand level of the job is a **Very Heavy** physical demand level. The physical demand level is determined by a 2 hand occasional lift of 95 # 12" to waist and a 2 hand occasional lift of 89# from floor to waist and a 2 hand frequent lift of 40# from waist to shoulder. NOTE; it is the frequent lift of 40# that places client in the Very Heavy Physical Demand Level.

Recommendations

MS. TEST IS FUNCTIONALLY EMPLOYABLE. GIVEN THE FACT THAT SHE DEMONSTRATED 41.00% OF COMBINED EFFORT (28 EXPECTED/69 TOTAL TESTS), SHE IS CAPABLE OF GREATER FUNCTIONAL ABILITIES THAN DEMONSTRATED DURING THIS FCE.

Job Demands Match Table

Job description was provided by employer.

Activity	Client Performance	Job Demand	Job Demand Match
Floor to Waist Lift Occasional	75.00#	95.00#	Unmet
12" to Waist Occasional	80.00#	89.00#	Unmet
Waist to Shoulder Lift Occasional	45.00#	50.00#	Unmet
Overhead Lift Occasional	25.00#	30.00#	Unmet
Floor to Waist Lift Frequent	35.00#	50.00#	Unmet

Quality of Effort (pertains to the extent or scope of a subject's volitional exertion in maximal or repetitive testing)		
Type	Description	Score
Working v. Resting HR	During repeated periods of maximum effort testing, working HR values should increase above resting HR. A minimum increase of at least 25% above the resting HR would be expected in a majority of trials to indicate full effort was provided.	Score = 0/11
Kinesiophysical Observations	Changes with movement patterns should be observed during periods of maximum effort testing. A minimum of 2 observations (altered base of support, recruitment of accessory muscles or counterbalancing) during a majority of tasks would be expected in instances of full effort.	Score = 2/7
Self Termination of task-non material handling/Job Simulated tasks	Effort cannot be rated due to client terminated activity without clinical objective findings.	Score = 0/1

Quality of Effort Details			
Type	Category	Expected	Unexpected
Kinesio. Signs	12" to Waist Lift (Frequent)		x
Kinesio. Signs	12" to Waist Lift (Occasional)		x
Kinesio. Signs	Bilateral Carry (Occasional)	x	
Kinesio. Signs	Floor to Waist Lift (Frequent)		x
Kinesio. Signs	Floor to Waist Lift (Occasional)	x	
Kinesio. Signs	Overhead Lift (Occasional)		x
Kinesio. Signs	Waist to Shoulder Lift (Occasional)		x
HR Variance	12" to Waist Lift (Frequent)		x
HR Variance	12" to Waist Lift (Occasional)		x
HR Variance	Bilateral Carry (Frequent)		x
HR Variance	Bilateral Carry (Occasional)		x
HR Variance	Floor to Waist Lift (Frequent)		x
HR Variance	Floor to Waist Lift (Occasional)		x
HR Variance	Overhead Lift (Frequent)		x
HR Variance	Overhead Lift (Occasional)		x
HR Variance	Waist to Shoulder Lift (Occasional)		x
HR Variance	Fork Lift Climb		x

Reliability of Pain (descriptions or expressions of pain or symptomatology that do not subscribe to the scientific laws of living organisms)		
Type	Description	Score
Cog-Wheel Muscle Release	The presence of cog-wheeling or ratchet-like resistance during manual muscle testing suggests the presence of volitional motor weakness.	Yes
Pre-Test Pain Level	High pain ratings should be consistent with altered movement patterns, range of motion and behaviors including a willingness to test despite high pain reports.	Score = 2
Visual Analog Scale vs. Numeric Pain Scale	Responses to these scales should have a direct correlation in order to be consistent.	Not Within Range
Ransford Pain Drawing (lumbar)	Reports of circumferential pain, glove or stocking presentation would in most cases be supported in the literature as inconsistent with the diagnosis.	Score = 5
Modified Oswestry LBP Disability Questionnaire	In the absence of organic findings, high-perceived disability may compromise recovery from injury.	Score = 36.00%
Observational Findings	Subjective pain reports and ROM/strength deficits should correlate to performance with associated tasks and/or behaviors in the clinic.	Score = 0/2
RPE vs HR Comparison	A patient's report of physical exertion should correlate with a corresponding increase in working heart rate.	Score = 5/10
Functional Pain Scale Changes and Mechanical Observations	Mechanical changes with movement or performance are expected with an associated functional pain scale increase.	Score = 3/7

Reliability of Pain Details			
Type	Category	Expected	Unexpected
Reliability of Pain Criteria	Cogwheel Muscle Release (non lumbar)		x
Reliability of Pain Criteria	Oswestry Low Back Disability Questionnaire	x	
Reliability of Pain Criteria	Pre-Test Pain Level	x	
Reliability of Pain Criteria	Visual Analog Scale vs Numeric Pain Scale		x
Reliability of Pain Criteria	Ransford Pain Drawing		x
Observational Findings	Do client's functional movements correlate to reported pain symptoms?		x
Observational Findings	When using the FPS during testing, are there 3 or more tasks where score did not correlate to functional deficits?		x
Mechanical Changes Associated with Functional Pain Scale Increase	Bending	x	
Mechanical Changes Associated with Functional Pain Scale Increase	Forward Reach		x
Mechanical Changes Associated with Functional Pain Scale Increase	Floor to Waist Lift (Frequent)	x	
Mechanical Changes Associated with Functional Pain Scale Increase	Overhead Lift (Occasional)		x
Mechanical Changes	Waist to Shoulder Lift (Occasional)		x

Determining Physical Demand Level:

PHYSICAL DEMAND LEVEL	OCCASIONAL 0-33% OF WORKDAY 0-2.5/hrs/day 0-100 Reps/day Up to 12.5/lifts/hour 1 lift every 5 min	FREQUENT 34-66% OF WORKDAY 2.5-5.5 hrs/day 101-499 Reps/day 12-62 lifts/hour 1 lift every 5 min to 1 lift every min	CONSTANT 67-100% OF THE WORKDAY Greater than 5.5 hrs/day 500+ Reps/Day Greater than 62 lifts/Hour 1 lift/min or greater	WALKING/CARRYING	TYPICAL ENERGY REQUIRED
SEDENTARY	10 LBS OR LESS	Negligible	Negligible	Negligible	1.5-2.1 METS
LIGHT	20 LBS	10 Lbs. and /or walk/stand/push/ pull of arm/leg Controls	Negligible and/or push/pull of arm/leg controls while seated	2.5 MPH. NO GRADE OR SLOWER SPEES WITH 10 LBS OR LESS	2.2-3.5 METS
MEDIUM	20-50 LBS	10-25 LBS	10 LBS	2.5-3.5 MPH. NO GRADE OR SLOWER SPEED WITH 25 LBS OR LESS	3.6-6.3 METS
HEAVY	50-100 LBS	25-50 LBS	10-20 LBS	3.5 MPH WITH 50 LBS OR LESS LOAD	6.4-7.5 METS
VERY HEAVY	IN EXCESS OF 100 LBS	Over 50 LBS	Over 20 LBS	3.5 MPH WITH 50 LBS OR MORE LOAD	Over 7.5 METS and up to 12 METS

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Department of Labor
Combination from Accelerated /AthleticoClinical Experience, Worksteps, DOL,

Value of Results

Decision Making Process

Maximum effort: Consistent, Reliable performance

- 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 in 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

Common Questions from Customers

- Do I need an FCE?
  - Need an FCE to determine current level of function
  - FCE will help determine appropriate course of treatment
  - Identify if patient is reliable/consistent
  - Work conditioning
  - Return to work
  - Job consultation
  - Job coaching
- Can you put my client in a work conditioning program without doing an FCE? **YES**
  - Goal is to promote success and compliance
  - Patient is learning how to transition from PT to work conditioning
  - Evaluation should be a submax level to determine safe/acceptable starting point in Work Conditioning
  - Start in program-provide supervision, proper progression and goal planning and defining expectations.

Common Questions from Customers

Can you put my client in a work conditioning program if the FCE results showed inconsistent/invalid results?

May do a 1 week trial to see if behavior changes

May do 1 week if physician or insurance company needs to gather more objective information on behavior patterns.

Common Questions from Customers

- Do I need an FCE after a Work Conditioning Program?
  - **Not if the work conditioning program is comprehensive and provides a discharge report that reports abilities compared to job requirements.**
  - **Why assess effort if client was successful in a program and has met job demands within a program.**

Why do therapy companies request medical records? Value of forwarding medical diagnostics and or medical records to evaluating therapist--

- Ensures accuracy of informative vs. client self-report
- Provides timeline sequences of medical involvement
- R/O's need for additional medical and therapeutic intervention—avoids inappropriate recommendations


GONE
WORKIN'