- Dennis Martin, OTR/L, CHT
- OT Program Director UPMC RI

- November 7th, 2026

LEARNING OBJECTIVES

- Understand the terms used in a Functional Capacity Evaluation (FCE)
- Understand the various uses of an FCE
- Identify and interpret the various parts of an FCE
- Relevance to TBI

DEFINITION OF AN FCE / FCA

- Functional capacity evaluation (FCE). A comprehensive performance-based medical assessment of an individual's physical and/or cognitive abilities to safely participate in work and other major life activities. FCEs are designed, administered, and interpreted by Examiners.

PURPOSES OF AN FCE

- Pre-employment Post Offer testing
- OVR – match workers to positions
- Return-to-work "fit-for-duty“
- Workers' compensation claims
- Personal injury claims
- Long-term disability insurance claims
- and Social Security Disability claims

FCE CONSIDERATIONS FOR TBI

- For Testing of a client with TBI, an FCE framework would need to be adapted to include assessment of cognitive and neurological demands of work, typically aimed at pre-injury work.
- Testing should be designed to match real world Challenges and may be designed to measure performance at the beginning of an evaluation and at the end of the evaluation to determine change in performance over time.
- Looking for support for Safe Job Options and potential need for accommodations.

RETURN TO WORK POST TBI

Post TBI return to work is 42.2% *

Return to pre-employment work is 33% *

Only 44% remained employed 3 years post injury **

SELF REPORT INTERVIEW TOOL

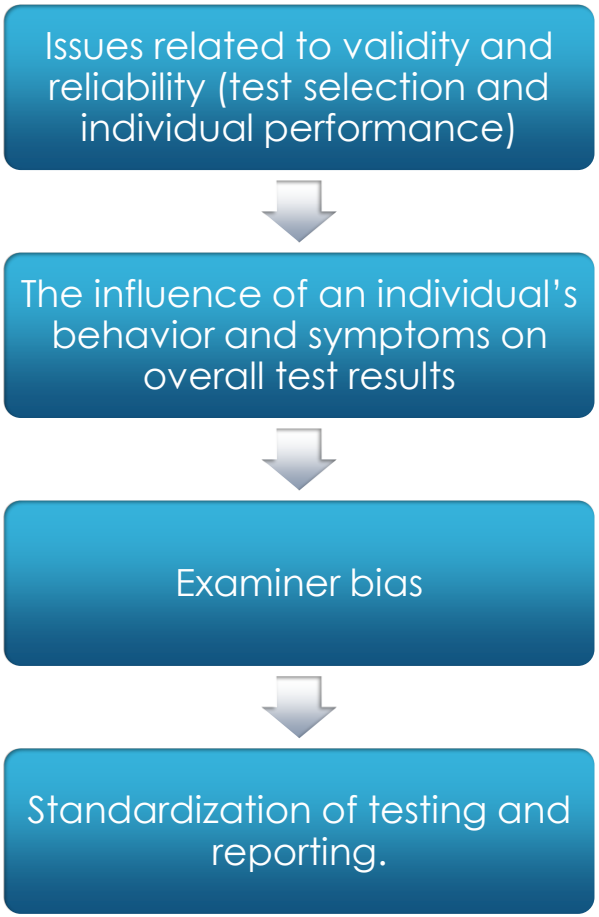
Functional Status Examination

- 10 domains, scored less dependence to more dependence, time to complete 15 to 20 minutes
- - Executive functioning
- Social integration
- Personal care
- Home management
- Travel
- Financial independence
- Personal care
- Ambulation
- Work or school
- Leisure / recreation

AN FCE

Gives a picture in time – a snapshot of performance

POTENTIAL LIMITATIONS OF FCE'S



THE EXPERIENCE LEVEL OF YOUR TESTER –MAY BE REFLECTED IN THE REPORT

- Your report should be clear and concise
- Address the important areas of the FCE
- Answer the questions that the referral source is looking for
- Be a valuable tool in solving the case

FCE REPORTS SHOULD INCLUDE:

- Demographics
- Reason for referral
- Job requirements if appropriate
- Physical capabilities
- Test performance detail
- Consistency of effort
- Presence of Behavioral Issues**
- Tolerance for work demands
- Summary of findings
- Reasons and limitations
- Recommendations



TIME TO PERFORM AN FCE

- The FCE expert panel recommends an allowance of up to 8 hours for a FCE conducted over a 1 to 2 day period. However, less or additional time may be necessary depending on case complexity. WE/SA

TIME SPENT PERFORMING AN FCE

Driven by reimbursement

insurance companies

Third Party Payers

TEST DESIGN AND PERFORMANCE

- Is dictated by the job description – Primary
- Secondary:
- Dictionary of occupational titles
- Test Subjects verbal description of job duties
- Testers experience

JOB DESCRIPTIONS

- Should include Critical Criteria or essential functions. They should be clearly defined. The job functions and specific parameters should be clearly detailed.

NURSE

Typically, in a workday, the employee must:		Never	Rarely <1% (0-.1 hours)	Occasionally 1-33% (.1-2.5 hours)	Frequently 34-66% (2.5-5.5 hours)	Continuousl 67-100% (5.5+ hours
Lift	1-10 lbs.	☐	☐	☐	☐	☐
	11-20 lbs.	☐	☐	☐	☐	☐
Alone___	21-50 lbs.	☐	☐	☐	☒	☐
With___	51-100 lbs.*	☐	☐	☐	☐	☐
Assistance	100+ lbs.*	☐	☐	☐	☐	☐
Carry	1-10 lbs.	☐	☐	☐	☐	☐
	11-20 lbs.	☐	☐	☐	☐	☐
Maximum	21-50 lbs.	☐	☐	☐	☒	☐
Distance:	51-100 lbs.	☐	☐	☐	☐	☐
____ ft.	100+ lbs.	☐	☐	☐	☐	☐
Push/Pull	1-10 lbs.	☐	☐	☐	☐	☐
	11-20 lbs.	☐	☐	☐	☐	☐
	21-50 lbs.	☐	☐	☐	☒	☐
	51-100 lbs.	☐	☐	☐	☐	☐
	100+ lbs.	☐	☐	☐	☐	☐

Typically, in a workday, the employee must:	Never	Rarely <1% (0-.1 hours)	Occasionally 1-33% (.1-2.5 hours)	Frequently 34-66% (2.5-5.5 hours)	Continuousl 67-100% (5.5+ hours
Sit	☐	☐	☒	☐	☐
Stand	☐	☐	☐	☐	☒
Walk	☐	☐	☐	☒	☐
Walk on rough or uneven ground	☒	☐	☐	☐	☐
Balance	☒	☐	☐	☐	☐
Climb stairs/inclined surfaces	☐	☒	☐	☐	☐
Climb ladder/scaffolding	☒	☐	☐	☐	☐
Bend (at waist)	☐	☐	☐	☒	☐
Twist/Turn	☐	☐	☐	☒	☐
Squat	☐	☐	☒	☐	☐
Kneel	☐	☐	☒	☐	☐
Crawl	☐	☒	☐	☐	☐
Drive an automobile (automatic transmission)	☒	☐	☐	☐	☐
Drive an automobile (manual transmission)	☒	☐	☐	☐	☐
Drive automotive equipment-without loading/unloading	☒	☐	☐	☐	☐
Use of feet for repetitive movement as in operating foot controls	☒	☐	☐	☐	☐
Use of hands for operating machinery or equipment controls	☒	☐	☐	☐	☐
Finger dexterity (for fine manipulation, writing, and/or keyboard work)	☐	☐	☐	☐	☒
Manual dexterity (for handling)	☐	☐	☐	☐	☒
Reach at shoulder level	☐	☐	☒	☐	☐
Reach below shoulder level	☐	☐	☒	☐	☐
Reach above shoulder level	☐	☐	☒	☐	☐
Work on or with moving machinery*	☒	☐	☐	☐	☐
Work at unprotected heights*	☒	☐	☐	☐	☐
Work with exposure to dust, fumes, gases, or chemicals*	☐	☒	☐	☐	☐
Work with exposure to marked changes in temperature and humidity*	☒	☐	☐	☐	☐
Work outside*	☒	☐	☐	☐	☐

***Working with the usual and customary safety standards used in industry.**

EXAMPLE OF NURSING DOT

- TITLE(s): NURSE, GENERAL DUTY (medical ser.) alternate titles: nurse, staff

- Provides general nursing care to patients in hospital, nursing home, infirmary, or similar health care facility: Administers prescribed medications and treatments in accordance with approved nursing techniques. Prepares equipment and aids physician during treatments and examinations of patients. Observes patient, records significant conditions and reactions, and notifies supervisor or physician of patient's condition and reaction to drugs, treatments, and significant incidents. Takes temperature, pulse, blood pressure, and other vital signs to detect deviations from normal and assess condition of patient. May rotate among various clinical services of institution, such as obstetrics, surgery, orthopedics, outpatient and admitting, pediatrics, and psychiatry. May prepare rooms, sterile instruments, equipment and supplies, and hand items to SURGEON (medical ser.) 070.101-094; OBSTETRICIAN (medical ser.) 070.101-054, or other medical practitioner. May make beds, bathe, and feed patients. May serve as leader for group of personnel rendering nursing care to number of patients.
- GOE: 10.02.01 STRENGTH: M GED: R5 M4 L5 SVP: 7 DLU: 89
- ONET CROSSWALK: 32502 Registered Nurses

- Physical Demand Categories

	Sedentary	Light	Medium	Heavy	Very Heavy
Occasionally (0%-33%	10 lbs.	20 lbs.	21 – 50 lbs.	51– 100lbs.	100+ lbs.
Frequently (34%-66%)	Negligible	10 lbs.	10 – 25 lbs.	25 – 50lbs.	>50 lbs.
Constantly (67%-100%	Negligible	Negligible	10 lbs.	20 lbs.	>20 lbs.

DICTIONARY OF OCCUPATIONAL TITLES

- Following are descriptions of the five terms in which the Strength Factor is expressed:

- S-Sedentary Work - Exerting up to 10 pounds of force occasionally (Occasionally: activity or condition exists up to 1/3 of the time) and/or a negligible amount of force frequently (Frequently: activity or condition exists from 1/3 to 2/3 of the time) to lift, carry, push, pull, or otherwise move objects, including the human body. Sedentary work involves sitting most of the time, but may involve walking or standing for brief periods of time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.

- L-Light Work - Exerting up to 20 pounds of force occasionally, and/or up to 10 pounds of force frequently, and/or a negligible amount of force constantly (Constantly: activity or condition exists 2/3 or more of the time) to move objects. Physical demand requirements are in excess of those for Sedentary Work. Even though the weight lifted may be only a negligible amount, a job should be rated Light Work: (1) when it requires walking or standing to a significant degree; or (2) when it requires sitting most of the time but entails pushing and/or pulling of arm or leg controls; and/or (3) when the job requires working at a production rate pace entailing the constant pushing and/or pulling of materials even though the weight of those materials is negligible. NOTE: The constant stress and strain of maintaining a production rate pace, especially in an industrial setting, can be and is physically demanding of a worker even though the amount of force exerted is negligible.

- M-Medium Work - Exerting 20 to 50 pounds of force occasionally, and/or 10 to 20 pounds of force frequently, and/or greater than negligible up to 10 pounds of force constantly to move objects. Physical Demand requirements are in excess of those for Light Work.

- H-Heavy Work - Exerting 50 to 100 pounds of force occasionally, and/or 20 to 50 pounds of force frequently, and/or 10 to 20 pounds of force constantly to move objects. Physical Demand requirements are in excess of those for Medium Work.

- V-Very Heavy Work - Exerting in excess of 100 pounds of force occasionally, and/or in excess of 50 pounds of force frequently, and/or in excess of 20 pounds of force constantly to move objects. Physical Demand requirements are in excess of those for Heavy Work.

FREQUENCY DEFINED

Constant activity. The activity or condition exists more than 2/3 of the time, or more than 5 ¼ hours in an 8 hour work day, or more than 62 repetitions per hour, or more than 500 repetitions in an 8 hour work day.

Frequent activity. The activity or condition exists more than 1/3 and up to 2/3 of the time, or more than 2 ½ hours up to 5 ¼ hours in an 8 hour work day, or more than 13 and up to 62 repetitions per hour, or more than 100 and up to 500 repetitions in an 8 hour work day.

Occasional activity. The activity or condition exists up to 1/3 of the time, or up to 2 ½ hours in an 8 hour work day, or up to 12 repetitions per hour, or up to 100 repetitions in an 8 hour work day.

RELIABILITY

- Able to reproduce results among different examiners

VALIDITY

- Does the test measure what it is supposed to measure?

FCE'S: RELIABLE/VALID???

FCE COMPONENTS

- Medical History *
- Vocational Screen *
- Pain Evaluation *
- Consistency of Effort Assessment
- Musculoskeletal Evaluation *
- Functional Ambulation Assessment *
- Material Handling
- Work Posture Assessment
- Job Simulation

FCE COMPONENTS

- Hand Functioning Tests
  - Range of motion
  - Sensory evaluation
  - Grip and pinch strengths
  - Edema
  - Coordination – specialty testing
- Physical Capacity Summary

COMMON POSTURAL ACTIVITES

- Sitting
- Standing
- Walking
- Climbing
- Balancing
- Stooping
- Kneeling
- Crouching
- Crawling
- Reaching
- Handling
- Fingering.

MATERIAL HANDLING

- Floor To knuckle lift
- 2 hand carry
- Push / pull
- One hand carry
- Knuckle to shoulder
- Shoulder to overhead
- Unilateral lifts
- Lifts away from the body
- Frequent lifting

JOB SIMULATION

- Custom designed
- Reproducible
- Purpose
- Parameters
- Performance Monitoring
- Results

TBI COMPONENTS TO AN FCE

- Working Memory under real world distraction
- Processing speed on time pressured tasks
- Executive function:

  planning

  problem solving

  task switching

  behavior regulation

  decision making

  error self monitoring

TBI FCE SHOULD MEASURE / DOCUMENT

- Error rates
- Response latency
- Self – correction frequency
- Behavioral signs of overload
- task abandonment
- perseveration
- irritability

SAFETY CONCERNS WITH AN FCE

- Cardiovascular: Heart rate / Blood Pressure
- Activity tolerance, mental fatigue, frustration
- Physical hazards if a client over or underestimates their safe limits
- Vestibular and balance concerns

SYMPTOMS

- Pain behavior is classified as abnormal if verbal and/or physical manifestations of discomfort are in excess of, or not consistent with objective evidence.

INCONSISTENT PERFORMANCE

- Inconsistent performance and abnormal pain behavior may be a sign of a psychological disorder or fear of increased pain, and sometimes, but not always a sign of malingering.

CONSISTENCY OF EFFORT TESTS

- Purpose: To determine if the client is demonstrating maximal volitional effort
- Analyze coefficient of variations over five trials on Jamar dynamometer pinch meter and tensiometer
- Analyze shape of curves when plotting grip strength from each position on Jamar dynamometer
- Compare maximum volitional effort (MVE) on Jamar dynamometer to rapid grip exchange (RGE) on Jamar dynamometer

POTENTIAL REASONS FOR HIGH COEFFICIENT OF VARIATIONS

- Learning curve
- Pain resulting in low effort on one grip or pinch
- Poor instructions provided by therapist
- Poor control of environment
- Extreme fatigue
- Fear of pain and/or reinjury
- Test anxiety
- Voluntary submaximal effort

INCONSISTENCIES

Centers for Rehab Services
Industrial Rehabilitation Program
Functional Capacity Evaluation

Inconsistencies:

- Waddells
- Demonstrated pain behaviors not consistent with subjective pain ratings.
- Non-organic pain behaviors – exaggerated pain behaviors.
- No pain behavior given distraction.
- Give-way weakness or cog wheeling with manual muscle testing.
- Inconsistent movement patterns i.e., not able to reach overhead with range of motion testing but able to do overhead postures or overhead lifting.
- Inconsistent gait pattern: treadmill versus ambulation through clinic.
- Knee buckling with no falls.
- Inconsistent performance of any posture or lifting versus functional activity.
- Inconsistent pain changes.

KEY TERMS WITH INCONSISTENT PERFORMANCE

- Over reaction
- Exaggerated pain behaviors
- Submaximal effort
- Self limiting behaviors
- Efforts are not deemed to be maximal effort

OTHER CONSIDERATIONS

- Heart rate monitoring and consistency with activity performance and endurance indications
- Medical history
- Muscle contraction
- Safety – heights, uneven terrain, temperature

RECOMMENDATIONS

Centers for Rehab Services
Industrial Rehabilitation Program
Functional Capacity Evaluation

RECOMMENDATIONS:

A summary of recommendations is typically included. In some rare situations you may not want to include recommendation and just detail the demonstrated physical capacity.

If recommending return to full duty base your recommendation on job description and/or the Department of Labor Guidelines for that position.

A good phrase when appropriate is:

Mr./Ms. meets critical criteria as required to perform the fully duty work position of .

RECOMMENDATIONS:

1. Return to full duty work.
2. Return to gainful employment within levels detailed in this report.
3. Return to modified employment.
4. If modified employment is not available, the client may be a good candidate for pain/work hardening program.
5. Rarely used: recommend further evaluation/diagnostics or unable to work.
6. PT/WH/Pain Program/OT/Vocational Rehab (note rehab potential).

CONCLUSION

- An FCE designed for TBI would be most appropriate at minimum for 4 to 6 hours. Prep time could be 1-2 hours given communications, chart review, job simulation development
- Barriers are reimbursement
- Significant time to develop job simulation matching pre – injury work would be required if that is the job target
- Development of protocols and use of standardized testing would need to be developed
- Communication with the referring physician is a must to determine specific info that is valuable to measure, given the vast possibilities; as well as concerns for safety.
- There is significant benefit to utilizing FCE's with TBI clients, but significant development needs to be done, and the barrier of reimbursement needs to be addressed.

QUESTIONS?

REFERENCES

- Hart, D.L., Iserhagen, S.J., Matheson, L. N.: Guidelines for Functional Capacity Evaluation of People with Medical Conditions. JOSPT. 18(6), December 1993.
- Keegan, D. M., Kahlert, R.: Industrial Rehabilitation Services. In Burke, Higgins, McClinton, Saunders & Valdata (eds.): Hand and Upper Extremity Rehabilitation, A Practical Guide. St. Louis: Elsevier, Inc. pp. 727-738,2006.
- Lechner, et. al.: Sincerity of Effort. Physical Therapy. 78(8) August 1998.
- Matheson, L. (2003). The functional capacity evaluation. In G. Anderson & S. Demeter & G. Smith (eds.), Disability Evaluation.
- 2nd Edition. Chicago, IL: Mosby Yearbook.
- Niemeyer, L. Q., Matheson, L. N., Carlton, R. S.: Testing consistency of effort: BTE Work Simulator. Industrial Rehabilitation Quarterly 2(1): 5–32,1989.
- United States Department of Health and Human Services:

  NIOSH Publications on Video Display Terminals, 3rd ed. , 1999
- Functional Capacity Experts, LLC and Disability Management Group, LLC SDVOSB
- * Brain injury calculator : Functional Capacity Evaluations in TBI litigation: quantifying return to work loss & boosting Settlement Outcomes (2026)
- **AOTA Returning to work after traumatic Brain Injury: a Comprehensive Approach to Functional Capacity Evaluation; Wheeler, Steven 05/01/2021



THANK YOU !