



Functional Capacity Evaluation

Elizabeth Tucker O'Day, MSPT, MS
Specialist, Healthcare and Human Services
A.I.M. Mutual Insurance Companies
(email) today@aimmutual.com
(mobile) 781.825.5504

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Background

- Tucker is a *Specialist in Healthcare and Human Services* with the Injury Prevention and Worksite Wellness (IPWW) division of A.I.M Mutual Insurance Companies and has specialized in the field of occupational ergonomics for over 15 years. Prior to joining A.I.M., Tucker established and managed the Partners HealthCare Occupational Health Ergonomics Program.
- She has completed a BA in Economics and French from Boston College, a Master of Science in Physical Therapy from Washington University in St. Louis and a Master of Science in Occupational Ergonomics and Safety at University of MA – Lowell and has obtained her LEAN Six Sigma Green Belt for Healthcare.
- She is currently pursuing her Healthcare Environmental Manager (HEM) certification and a Gerontology Graduate Certificate at UMass– Boston. She is a guest lecturer in the Department of Public Health at University of MA – Lowell and is a member of the Massachusetts DPH Safe Patient Handling Stakeholder Workgroup.



Functional Capacity Evaluation (FCE)

- *Objectively* measures “the ability of an individual to perform functional or work-related tasks and predicts the potential to sustain these tasks over a defined time frame”
 - Occupational Health Physical Therapy: Evaluating Functional Capacity Guidelines, American Physical Therapy Association, Orthopedic Section (2011)

When Are They Used?

- Return-to-work/activity decisions,
- Disability determinations, determination of loss of earning capacity, litigation settlement or case resolution,
- Design rehabilitation plans, or
- Pre-placement screening



Validity And Reliability Is Questionable

Questionable Validity and Reliability

- High degree of variability between FCE Instruments and evaluators
 - Approximately 10 different models commonly used
 - Extent of evaluatee interview, clinical exam and how data is reported and correlated with functional performance varies
 - Lifting tests vary between models (e.g. # of reps, acceptable postures, how frequent lift ability is determined and whether constant ability is included)
 - How movement and position tolerances are assessed is highly variable
 - Test sequence is variable
 - Criteria for acceptable BP and HR varies
 - Determination of full vs. part-time work ability criteria varies

- Third International Functional Capacity Evaluation Research Conference (2016)

Questionable Validity and Reliability

- Gottbarga and Wind (2004)
 - Studied four commonly used FCE instruments: Isernhagen Work System, Ergo Work System, Ergo Kit System and Blankenship System
 - *Isernhagen Work System* had consistent inter-rater reliability and predictive validity but insufficient intra-rater reliability
 - Neither Ergo Work System or Ergo Kit System demonstrated concurrent validity and, to date, no studies have documented the reliability and validity of the Blankenship System
- Reneman (2004)
 - Demonstrated reliability and validity of *Isernhagen* but saw minor complication with two patients developing acute low back pain “unrelated” to the testing session

Questionable Validity and Reliability

- Pransky and Dempsey (2004)
 - Validity problems due in part to both poor characterization of job demands and inaccurate measurement of a worker's actual performance capability in relation to those demands
- Reneman (2004)
 - Demonstrated reliability and validity of *Isernhagen* but saw minor complication with two patients developing acute low back pain “unrelated” to the testing session
- Brower and Reneman (2003)
 - Studied use of *Isernhagen* with 30 chronic low back pain patients and found most of their variables were reliable with the exception of four subtests

May Not Be Predictive of Return To Work

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- Gross, Battle and Cassidy (2004)
 - Evaluated FCE in patients with chronic low back pain in two part study
 - Part 1:
 - Floor-to-waist lift was predictive of the number of tasks failed
 - Common for completed FCE to result in closure of claim but not predictive of return to work
 - i.e. By undergoing FCE, patient likely to be in position of deciding whether to return to work since closure of claim often results in suspension of benefits
 - Suspension of disability benefits was observed in many studies an average of 32 days following completion of FCE
 - **Concluded influence of psychosocial and contextual factors on return to work are significant**
 - **Time off work may actually be stronger predictor of return to work**

May Not Predict Sustained Recovery

May Not Predict Sustained Recovery

- Gross, Battle and Cassidy (2004)
 - Part 2:
 - Sustained recovery defined as “no new claim of total temporary disability within the time period studied and no old claim re-opened”
 - 20% of 226 patients studied had recurrent low back pain following their FCE and
 - Those who had lower number of failed tests were associated with higher risk of recurrence
 - Ability of an FCE to identify claimants who are safe to return to work is suspect
 - **FCE process and its administration are only as good as the examiner**
 - **“Performance on FCEs is influenced by physical factors, perceptions of disability and pain intensity. Therefore, FCEs should be considered behavioral tests influenced by multiple factors including physical ability, beliefs and perceptions”**



Conclusion

- Implementation and execution of an FCE instrument that *accurately* simulates job tasks is difficult
- Evaluator judgement can be a source of low validity
- FCEs based on job simulation test only physical demands and fail to account for additional factors – environment (e.g. temperature) and/or psychological/psychosocial components (time pressure, job demands, monotony)
- FCEs only measure one point in time
- May provide a better measure of pain tolerance than peak functional capacity

Conclusion

- Time off/away from work may be stronger predictor of return to work
- To be as successful as possible, requires:
 - thorough job task analysis
 - detailed work simulation
 - administration by an expert evaluator and
 - evaluatee who is motivated to return to work
- FCEs *should only be considered one component of a broader program* that addresses injury prevention and return-to-work

References

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- *Functional Capacity Evaluation Research: Report from the Second International Functional Capacity Evaluation Research Meeting*. James C.L., Reneman, M.F. , Gross D.P., Journal of Occupational Rehabilitation (June 2015)
- *Practical Aspects of Functional Capacity Evaluations*. Pransky G.S., Dempsey P.G., Journal of Occupational Rehabilitation (October 2004)
- *Practical Issues in FCE Administration and Interpretation*. Galper J., Third International FCE Research Conference - <http://repro.rcnheliomare.nl/FCE.pdf> (September 2016)