Guidelines for Functional Capacity Evaluation of People With Medical Conditions[1]

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Functional capacity evaluation is an important and widely available service provided by rehabilitation professionals, including many physical therapists. In the absence of agreed-upon professional standards, guidelines for practice have been developed. These guidelines provide a basis for the development of standards of practice which the authors believe should be undertaken on an interdisciplinary basis. These guidelines provide a baseline level of care that should be maintained by physical therapists and others who provide functional capacity evaluation services.

Key Words: *industrial rehabilitation, functional capacity evaluation, guidelines*

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Professional community standards mark the development of a profession and facilitate its practice. Functional capacity evaluation has been practiced for many years by physical therapists, occupational therapists, vocational evaluators, and psychologists. Each of these professions has well-developed standards of practice. However, none of the professions has standards for the practice of functional capacity evaluation. We believe that these standards are necessary and that they should be developed on an interdisciplinary basis.

In the absence of formal standards, guidelines that we can recommend to the practicing professional have been developed. These guidelines are based on professional experience as well as a review of scientific and technical materials that have been published in the professional literature. These guidelines are offered as a starting point for the interdisciplinary development of professional standards in functional capacity evaluation.

OVERVIEW

Functional capacity evaluation (FCE) is a comprehensive, objective test of a person's ability to perform work-related tasks (4). The evaluation of functional capacity always carries some degree of risk. Control of this risk so that the "risk-to-reward ratio" can be maximized has been a focus of study of the Ergonomic Rehabilitation Research Society, Inc., founded by the authors in 1987.

Five issues must be addressed in the selection and use of any functional test in the field of rehabilitation (5,8,9,11). These issues, presented in hierarchical order, are:

1) Safety—Given the known characteristics of the evaluee, the procedure should not be expected to lead to injury;
2) Reliability—The test score should be dependable across evaluators, evaluees, and the date or time of test administration;
3) Validity—The interpretation of the test score should be able to predict or reflect the evaluee's performance in the target work setting;
4) Practicality—The cost of the test procedure should be reasonable and customary. Cost is measured in terms of the direct expense of the test procedure plus the amount of time required of the evaluee plus the delay in providing the information derived from the procedure to the referral source; and
5) Utility—The usefulness of the procedure is the degree to which it meets the needs of the evaluee, referrer, and payor.

These five factors relate to each other in a dynamic manner such that a decision to emphasize or minimize one of the factors usually will affect

the other factors. This trade-off is important for the evaluator to appreciate. Functional capacity evaluation requires the evaluator to use tests that are optimal given the evaluee and the evaluation circumstance. There is no single most appropriate test for any one evaluee or for any one evaluation circumstance. The best that the professional evaluator can do is to select a test that reflects the needs and abilities of his or her evaluee in the situation in which the evaluation will take place. With this discussion in mind, let us turn to issues that are concerned with the proper selection and use of evaluation procedures.

INDICATIONS FOR FUNCTIONAL TESTING

Testing must have a clear and well-understood purpose. Indications for functional testing include any of the following:

1) No progress with conservative modalities or invasive treatments. Treatment progress has reached a plateau.
2) Discrepancy between subjective complaints and objective findings.
3) Difficulty returning to gainful employment.
4) Vocational planning and/or medicolegal case settlement requires determination of functional capacities.

In each of the above situations, the objective analysis of function will assist the medical team to safely progress the rehabilitation program to conclusion in spite of continuing complaints (7).

CONTRAINDICATIONS FOR FUNCTIONAL TESTING

In addition to reviewing any contraindications provided by the evaluee's physician, the evaluator must screen for other contraindications. These include absence of medical stability or the presence of other medical problems that may be affected by the testing, ie., cardiac, pulmonary, or psychological difficulties. In addition, the evaluee must be able to communicate with the evaluator, understand instructions, and communicate concerns and reactions to testing.

PURPOSE OF TESTING

The purpose of testing must be established prior to testing. The general purpose of an FCE is to determine what the individual can do at work on a safe and dependable basis. There are three different types of FCE, distinguished in terms of degree of evaluation and specificity of focus:

These guidelines are based on professional experience as well as a review of scientific and technical materials.

Baseline Capacity Evaluation

If no specific job is identified to which the worker will return, a general FCE should be conducted that quantifies worker traits listed in the Dictionary of Occupational Titles (12). The common physical demands that are tested include, but are not limited to, the following: sitting, standing, walking, balancing, climbing, kneeling, stooping, crouching, reaching, lifting, carrying, pushing, pulling, motor coordination, fine dexterity, medium dexterity, grasping, and pinching.

Job Capacity Evaluation

If the specific job to which the individual is returning is known and a functional job description or job analysis has identified the critical job demands, these should be tested in a Job Capacity Evaluation. The difference between the Baseline Capacity Evaluation and the Job Capacity Evaluation is the goal of each. The Baseline Capacity Evaluation provides a generic FCE while the Job Capacity Evaluation provides a specific match of the physical abilities of the worker to the demands of a specific job.

Work Capacity Evaluation

If there is a need to determine the potential for the individual to be able to withstand the basic demands of competitive employment, such as full-day workplace tolerance and daily attendance, a Work Capacity Evaluation is appropriate (6). Work simulations that are conducted over a significant time period within a simulated work environment are added to a Baseline Capacity Evaluation or a Job Capacity Evaluation so that the match between the individual's capabilities and the demands of competitive employment can be determined.

This variety of formats requires that the evaluator be flexible in the selection of tests in the battery and be able to modify the test battery as needed. If the use of a limited testing format raises doubts about unrecognized functional deficits, a more thorough test battery should be used. The more comprehensive format reduces the potential for missing functional deficits from secondary problems and allows a more thorough quantification of abilities and limitations.

TARGET VARIABLES

Testing should take place within the context of the demands of competitive employment (3). Performance during testing needs to be described and quantified. Body mechanics, range of motion, strength, endurance, pace, coordination, bal-

ance, and safety should be included (2). As the duration of the test battery increases, certain factors, such as the ability of the evaluee to sustain physical activity or feasibility for competitive employment (6), can be addressed more accurately.

If there is a job to which the evaluee is expected to return, information from the FCE should be compared to the job's physical demands so that ergonomically safe return-to-work decisions can be made or proper rehabilitation plans can be generated. The term "capacity" implies potential that cannot be directly measured (6). As a consequence, the evaluee's potential to sustain work-related tasks is predicted rather than directly measured. This prediction is based on the evaluee's measured ability to perform during the FCE. Thus, the degree to which the FCE samples the job's demands determines the predictive validity of the FCE.

PERSONNEL

In order to conduct an accurate and safe FCE, the evaluator must have the ability to combine knowledge of pathology and function relevant to the evaluee's type of impairment. This allows the evaluator to "monitor, record, assess, and design an outcome statement" (4) following the data collection. In addition, the evaluator must be trained to perform the FCE, with specific training on the tests that are used.

EQUIPMENT

To meet the goals of the testing, there should be designated personnel, physical floor space, and equipment for functional testing (3). There should be standardized methods used to conduct each test and interpret the results (9,11). The tests in the FCE battery should assess the evaluee's ability to be productive in work-related tasks in terms of ability to initiate, perform, and complete an activity. Each test should be related to the goal of the testing, ie., what can the person do safely and dependably at work. For example, if lifting will be performed at work, lifting tasks should be performed during the FCE in a manner that simulates the lifting that will be performed on the job as closely as possible, thus improving the validity of the FCE.

SPECIAL CONSIDERATIONS

Safety

Safety is a function of the match between the performance demands placed on the evaluee and the evaluee's ability to limit performance appropriately (5). Determination of the evaluee's maximum safe and dependable performance level is a professional judgment made by the evaluator based on the evaluee's performance. This judgment takes into account the signs, symptoms, and behaviors that indicate that the evaluation has progressed to a point at which the safety, reliability, validity, or practicality of the evaluation cannot be maintained with a reasonable degree of certainty. Thus, the professional evaluator's training and experience to utilize the test's maximum performance indicators are necessary conditions for functional testing.

Performance during testing needs to be described and quantified.

Medical Stability

Medical stability of the evaluee is a necessary condition for functional testing. Medical stability is defined as that state in which primary healing is complete. Clinically, medical stability refers to the consistent presence of a set of signs and symptoms. Consistency means that the location of the symptoms and the presence of the signs has reached a plateau. The intensity of the symptoms may vary with activity or treatment, but the location of the symptoms remains consistent.

Diagnosis

Prior to undertaking functional testing of people with medical conditions, the establishment of a confirmable diagnosis is preferable. However, since many people will not have confirmable diagnoses, ie., those with low back pain syndrome, the presence of medical stability is sufficient (10).

Chronic Pain

Pain is not a contraindication for functional testing or active mobilization as long as the condition is medically stable (1,13). If the patient has been inactive for more than 4 weeks, it is to be expected that the increased activity in the FCE will be associated with increased complaints of pain. If the anatomical location of the pain remains the same, the condition, by definition, remains medically stable, even in the face of increased intensity of the pain. However, a person with a medical problem that is not stable should not undergo functional testing without further medical work-up and clearance.

Recent Surgery

If the evaluee has had surgery, the definition of "primary healing" becomes more complicated. The surgeon is responsible for determining when functional testing is appropriate and for providing medical contraindications. Functional testing following surgery should be modified to accommodate any medical restrictions.

Maximum Medical Improvement

The evaluee does not need to have been determined to have reached maximum medical improvement status to undergo functional testing. Many evaluees can be tested and returned to jobs to which they are ergonomically matched before they have reached maximum medical improvement. In fact, inactivity while waiting for this status to be determined will create physical deconditioning and may substantially decrease functional capacity. This "iatrogenic dysfunction" can be avoided if the evaluee returns to activity as soon as possible.

Medical Examination

The primary goal of a medical examination is to provide a medical diagnosis from which to develop or revise the medical treatment plan. The medical examination must be performed by a qualified physician, preferably in the specialty required by the patient. The medical examination also may provide medical contraindications for various movements or forces applied to specific body parts. Since no function is tested in the medical examination, reference to a specific level of function should be reserved for the conclusions of an FCE (1).

PROCEDURES FOR THE MEASUREMENT OF FUNCTION

Because the FCE stresses the evaluee's capacity to obtain a safe and dependable maximum for "accurate documentation regarding work and activities of daily living" (4), the FCE must contain several basic components, presented below in order of occurrence:

1) **Take a history**—The first component of the FCE is a history of the evaluee's medical, social, and vocational status. This must be taken prior to the preevaluation screening examination. The history should determine the evaluee's perception of his or her own disability. During the history process, an attempt should be made to establish rapport and to identify the evaluee's goals for the FCE.

2) **Perform a preevaluation screening examination**—The second component of the FCE is an appropriate screening examination based on the diagnosis of the evaluee. For example, a person with a musculoskeletal injury should receive a neuromusculoskeletal screening examination, and a person with a traumatic brain injury should receive a cognitive screening examination. The purposes of the screening examination are: *1)* to confirm that the evaluee is medically stable, *2)* to confirm that the evaluee does not have any contraindications for testing, and *3)* to quantify physical impairment for a potential permanent impairment rating, for any posttesting comparisons, or for any comparisons to measured functional limitations.

Test results that are provided without the interpretation of the evaluator often are meaningless and can be misleading.

The screening examination quantifies impairment, provides a basis for rating symptom magnification, and lists the evaluee's specific problems. The screening examination will provide the evaluator with an opportunity to identify and evaluate the potential risks or contraindications for performing the FCE..

3) **Perform functional testing**—The third component of the FCE is functional testing. The results of the functional test battery should describe function of the injured worker, as well as his or her limitations, so that reinjury can be prevented. "In the process, injured workers are educated on their own abilities and limitations to facilitate a more proactive role in their return-to-activity process" (4).

4) **Interpret results**—The fourth component of the FCE is one aspect of the process that distinguishes the professional evaluator from the evaluation technician. Interpretation of test results lies within the domain of the professional's expertise and must be undertaken by the professional. Test results that are provided without the interpretation of the evaluator often are meaningless and can be misleading. The results of the FCE become an integral part of the return-to-work process. It forms a basis for return-to-work conclusions which allow appropriate productivity, with the possibility of identifying "physically contraindicated work activities" (4) that can be modified to make the activities safe in spite of an impairment.

5) **Prepare a report**—Once the findings of the history, prescreening examination, and functional testing have been interpreted, a full report should be written. The following areas should be addressed: *1)* pertinent medical history and diagnosis; *2)* per-

tinent social and vocational history; *3)* prescreening examination results; *4)* functional test results (demonstrated motivation, evaluee's perception of function, significant functional abilities, and significant functional deficits); *5)* physical abilities compared to the physical demands of the job; and *6)* recommendations.

CONCLUSIONS

The health care professional who wishes to provide high quality clinical service in any area must adhere to accepted standards of community practice. Professional standards provide a minimum level of care upon which the community can depend. In the field of industrial rehabilitation, standards are important because of the complexity of the evaluee and the situation in which the evaluee is often found. Additionally, medicolegal issues concerning both the applicability of results and the potential for litigation against the evaluation professional are best addressed through adherence to appropriate standards of practice. JOSPT

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