



## **GUIDE FOR PERAC**

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# **FUNCTIONAL CAPACITY EVALUATION**



**Commonwealth of Massachusetts  
Public Employee Retirement Administration Commission**

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## Introduction

The Functional Capacity Evaluation (FCE) plays an integral role in the Return to Service (RTS) program. The Comprehensive Medical Evaluation (CME) physician will, via history including activity tolerance and a physical exam, decide whether to allow or clear a retiree to proceed to a FCE. Comments generated and observations made during the FCE will aid the CME physician in developing his or her opinion as to readiness. Findings or deficits characterized during the FCE may assist the CME physician and PERAC staff in choosing further sub-specialty input when indicated. Although the CME physician may order an FCE for any retiree, the FCE serves as a key aspect of the RTS process for public safety retirees who must undergo a Physical Ability Test (PAT). Clearance to participate in the PAT is contingent on FCE performance.

If the FCE finds deficits that lower the probability of passing the PAT, then the CME physician can recommend postponement of the PAT until those deficits are addressed. Thus, the risk of injury during a premature attempt at the PAT can be obviated. The FCE content should be job specific and include rate limiting ergonomic challenges, i.e., simulation of key essential tasks. The FCE should test all four components of physical fitness: cardiovascular fitness, flexibility, muscular endurance, and muscular strength. In the past, retirees have failed the PAT due to the lack of muscular endurance despite having done well during an Exercise Tolerance Test (on treadmill, walking only).

The Public Employee Retirement Administration Commission (PERAC) prefers not to proscribe the exact content of the FCE. However, PERAC desires that each retiree undergo an FCE that at least meets certain minimal criteria. This guide identifies best practice procedures

## Preparation

Before the performance of a PERAC FCE, please prepare by reviewing the content of the intended evaluation. Especially for firefighters, police officers, and state police officers, some effort will be required to develop a series of job simulating tasks if your facility has not previously done so. Simply picking the computer-based program that may best fit will not suffice. Further, FCE reports generated exclusively via computer directed and tabulated programs may not be accepted by PERAC.

For fire and police, those involved in the development and administration of the FCE are required to sign the form attesting to their having watched the videotape depicting job hazards as well as the actual testing stations during the PAT. Please also refer to the extensive documents available from the Massachusetts Human Resources Department on fire/police job demands and PAT stations. These should assist in developing a quality FCE and in generating the summary report.

For FCEs on retirees who are not police officers, firefighters, or state police, the content should be specific to that person's job, the four components of physical fitness tested, and a report generated that includes descriptions of direct observations and deficits.

## Personnel

The FCE will be administered and the summary report generated by a licensed Physical Therapist (PT) or Occupational Therapist (OT) with at least 3 years of outpatient experience. No portion of the testing may be delegated, except for: (1) the set-up or breakdown of equipment used during testing, and (2) a Physical Therapist Assistant's (PTA) supervision of the 20-minute cardiovascular workout mentioned below.

## Equipment

PERAC understands that it would not be feasible to re-create the specialized equipment and obstacle courses developed for the PAT. A solid FCE should be possible utilizing most physical therapy facilities and existing equipment, although a few inexpensive items may be worth considering. PT/OT's that perform FCEs for a broad scope of jobs are familiar with improvising, e.g., finding a stairwell or roof access ladder that can safely be utilized to simulate a job task. Here are a couple of examples of inexpensive equipment that can be used to simulate critical job demands: (1) Secure a ladder to a wall for a space-efficient station; (2) Attach a pulley to the ceiling and use a rope and weighted bucket to test repetitive hand-over-hand activity. Obviously, such stations can be used in work evaluations of non-PERAC clients, and during work hardening activities.

Here are a couple of examples of utilizing existing equipment: (1) The police officer squeezes a Jamar Dynamometer with each index finger to simulate trigger pulls; (2) A latissimus dorsi pull-down bar is used in a standing posture to push down at near maximum strength, and repetitively at a lower weight to test muscular strength and endurance respectively, while simulating or considering whether a police officer has the ability to take down a suspect and perform hand cuffing.

## Content

### Flexibility/Range of Motion (ROM)

The FCE should include assessment of joint range of motion, soft tissue flexibility (e.g., hamstring), and overall ability to meet positional challenges and perform tasks. When in question, possible deficits should be either quantified (e.g., degrees measured) or at least qualified (e.g., estimate percent of normal; identify whether the range of motion was or was not sufficient to allow a certain task to be performed). The ability to stoop, look up and to the side (neck range of motion), squat, kneel, combat crawl (for law enforcement workers), reach overhead, stand and sit for periods of time, should be assessed. Hand function should be mentioned as to the ability to grip, form a tight fist, squeeze with each index finger (law enforcement), pinch, and oppose thumb to small finger. Particular attention should be placed upon an area or joint known to have been a problem in the past including, but not limited to, any injury from which the retiree became disabled. The performance of a series of job simulating stations should assist and allow for critical observations of flexibility.

### Cardiovascular Fitness

Retirees should be observed performing at least 20 minutes of sustained activity sufficient to achieve and maintain a heart rate between 65% and 85% of their maximum heart rate (i.e., 220 minus age). Preferably, the equipment or type of activity chosen would utilize larger muscle groups in both upper and lower extremities. If a treadmill or bicycle is used, then a portion of the cardiovascular fitness portion should be done with an upper extremity ergometer. Blood pressure and pulse should be assessed at rest before exercising, at completion, and then again at two and five minutes. Tolerance of the activity should be observed and recorded. Self-perception of exertion should be recorded.

## **Muscular Strength/Functional Abilities**

Gradually increasing weights should be utilized to assess, in a safe manner, the retiree's strength/functional abilities. At some point after the warm-up/cardiovascular component, the evaluator should record strength measures while observing for signs of fatigue or loss of appropriate body mechanics, e.g., recruiting other muscles, awkward change of technique. The retiree should be allowed and encouraged to speak up when a task seems too much. The task should be aborted at the first indication of either altered technique or described discomfort.

Areas tested should include:

### **Push/Pull**

- Lifting overhead with each hand and with both hands
- Carrying with each hand and with both hands
- Grip strength left and right
- Index or trigger pull left and right

Weights or force should be noted. Examples of comments as to endpoints are listed below.

### **Comment Examples**

- Right hand carry: 40 pounds maximum. Trunk lean to left noted with 50 pounds.
- Right hand overhead lift: 20 pounds maximum. Using momentum to lift 25 pounds.
- Both hand carry: 75 pound maximum. Posterior trunk lean with 85 pounds.

## **Muscular Endurance / Obstacle Course**

Prior to the completion of testing, each retiree should be assessed as to his or her ability to perform tasks in sequence to simulate work. The member should be introduced to the stations and any specific technique required. Completion of each series of tasks should be timed, with the retiree being asked to put forth his or her best effort. The series of tasks can then be repeated to assess endurance. Pulse rate and blood pressure should be assessed between series. Abnormally elevated pulse or blood pressure, substantial signs of fatigue, or symptoms of cardiac or pulmonary compromise, would be among the potential indicators for early cessation.

The retiree should be observed while completing the stations in a circuit without prolonged lapses in time between tasks. Pace and time to complete each task should be monitored. Consider asking your local fire and police departments to send over a few active-duty firefighters and police officers of various ages to try their hand at the tasks. This would allow the evaluator to establish reasonable pace expectations and provide the FCE facility the ability to obtain constructive feedback regarding the stations, equipment, and testing personnel.

PERAC would prefer not to proscribe the exact content of a testing facility's stations. In order to assist facilities in their review of existing protocols and any necessary augmentation, the following example elements are mentioned:

- Push/pull approximately 60% of body weight (e.g., 175-pound person push/pull 105 pounds)
- Carry 50 pounds using both hands for 60 feet
- Ladder climb (equivalent of 35 feet)
- Crawl 25 feet
- Combat crawl (for police officers)
- Drag a 150-pound weighted mannequin or duffel bag without hand grips 50 feet
- Balance on each foot for 30 seconds, then walk heel-toe on a board 10 feet long
- Pull rope with 25 pounds of weight hand-over-hand 3 minutes
- Lift 50 pounds from floor to waist three times
- Lift 40 pounds from waist to shoulder height three times
- Lift 25 pounds from shoulder height to overhead
- Take down lat pull or other resistance device with 100 pounds of force for 30 seconds

Task stations would be modified depending on job description and, to some extent, body habitus. Barring grossly different body habitus/capability, the same stations and protocol should be utilized for a specific job. The comments and observations of the evaluator are as important as the specific task or equipment.

## Reporting

The PT or OT should construct a report that briefly describes content, conveys observations made during testing, and comments on capability. PERAC values the input from the professionals conducting its FCEs. The FCE report should identify deficits in any of the four components of fitness. Joint limitations or pain from the use of a certain area of the body should be noted. Discrepancies between the stated job requirements and the performance by the retiree should be discussed. For example, if the retiree's job requires heavy exertion, but the retiree exhibited only light exertion, then this should be noted in detail. The FCE report will assist the CME physician in considering whether to recommend the individual for the PAT, obtain further subspecialty consultation, and/or order additional tests.





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