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## Physical Fitness Bona Fide Occupational Requirements for Safety-Related Physically Demanding Occupations; Test Development Considerations

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### Abstract

To qualify as a Bona Fide Occupational Requirement (BFOR), a Job Specific Physical Fitness Protocol (JSPFP) must conform to the requirements delineated in the 1999 Supreme Court of Canada's Meiorin Decision and the 2004 amendment to the Criminal Code of Canada. It is also highly recommended that the development of BFORs follow the template created in the 2001 BFOR Consensus Forum with attention to the precedent established in the 2002 decision of the Ontario Human Rights Commission. Validation of a JSPFP is achieved by a combination of construct and content validation procedures and reliability is established via a test-retest process. To overcome the potential adverse impact of a JSPFP on a sub-group of participants, it is possible to markedly improve the ability of a participant to pass a BFOR standard by engaging in test familiarization opportunities and in a job-specific physical fitness training program, which together can provide de facto "accommodation" for the adverse impact. **Health & Fitness Journal of Canada 2011;4(2):47-52.**

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### Overriding Considerations in the Development of a JSPFP

It has become common practice in public safety occupations to establish a Job Specific Physical Fitness Protocol (JSPFP) and performance standard as a Bona Fide Occupational Requirement (BFOR) that conforms to legislation, court

judgments and Human Rights Tribunal decisions. A JSPFP can only be implemented for occupations in which "ineffective job performance can result in loss of life or property" (Jamnik et al. 2010a). Since the safety of the worker, co-workers and the general public depends on successful job performance in public safety occupations, it is essential that participants have the physical capabilities required to meet the demands of the job.

The intent of a JSPFP is to determine whether an applicant or incumbent possesses the necessary physical attributes to safely and efficiently perform the critical, physically demanding on-the-job tasks encountered in a public safety occupation (Jamnik et al. 2010a). This distinction is based on the 1988 Government of Canada definition that a BFOR is a condition of employment imposed in the belief that it is necessary for the safe, efficient and reliable performance for the job and which is objectively, reasonably necessary for such performance (Canadian Charter of Human Rights 1988).

The 1999 Supreme Court of Canada's Meiorin Decision (Supreme Court of Canada 1999) obliges employers to follow a three step process to prove that a BFOR standard is not discriminatory. To do so, an employer must ensure:

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1. That the standard was adopted for a purpose rationally connected to the performance of the job;
2. That the standard was adopted in an honest and good faith belief that it was necessary to the fulfillment of that legitimate work-related purpose; and
3. That the standard is reasonably necessary to the accomplishment of that legitimate work-related purpose. To show that the standard is reasonably necessary, it must be impossible to *accommodate* individual employees without imposing *undue hardship* on the employer.

In addition, a 2004 amendment to the Criminal Code of Canada legislated that employers and/or management would be deemed criminally negligent should they fail to ensure that “when public safety workers require the physical and physiological attributes necessary to avoid foreseeable risk, an employer has the duty of care to ensure that those physical and physiological attributes are present” (Criminal Code of Canada 2004).

The 2001 BFOR Consensus Forum provided detailed guiding principles for establishing a JSPFP that will qualify as a BFOR (Figure 1) (Gledhill and Bonneau 2001). Since the validity and reliability of a BFOR must be founded on credible scientific evidence, this led to the application of scientific principles to document the validity and reliability of JSPFPs.

### Categories of JSPFPs

There are three different categories of JSPFPs. Fitness component or construct validity JSPFPs employ standardized laboratory fitness tests to evaluate the physical attributes necessary for safe and

efficient job performance. The tests do not simulate the specific work demands or force applications used on the job, instead they assess the strength/force applications required by the participant to accomplish the demands of the job. Examples of construct validity test components are; push ups, hand grip, bench press and the aerobic shuttle run.

Content validity JSPFPs are composed of task simulations that replicate the work demands and force applications of the job. Job simulation tests are generally preferred over fitness component tests because participants or arbitrators can easily see the relationship to the job. The task simulations in a JSPFP can be performed in a discrete or serial manner. Discrete tasks are evaluated independently while serial tasks incorporate several task simulations into a continuous circuit with a single overall completion time standard. An example of a content validity test is that for nuclear emergency response incumbents which incorporates several emergency task simulations into a continuous circuit that must be completed in 11 minutes or less.

Hybrid JSPFPs incorporate a combination of construct and content components (Bonneau 2001). Examples of hybrid tests include the Physical Readiness Evaluation for Police and the York University Structural Fire Fighter Applicant Fitness Assessment. These protocols combine a task simulation circuit with a valid and reliable assessment of aerobic fitness using either a directly measured  $VO_2\max$  or the estimation of  $VO_2\max$  from the Leger 20m shuttle run (Leger 1982). Each of these three test methodologies has associated strengths and weaknesses. However, in all cases, to qualify as a BFOR it must be demonstrated that the test is rationally connected to the accomplishment of the

**Figure 1. Template for developing and validating a BFOR; 2001 BFOR Consensus Forum**

1. Justify the need for a BFOR and clarify underlying issues.
2. Form a project management team.
3. Job familiarization including relevant professional manuals, reports and subject matter experts.
4. Job review: in the order of critical/essential, physically demanding and frequently occurring tasks.
5. Representative subset of physically demanding tasks,
6. Characterization of tasks (simulated): time, distance, weight, measured forces etc.
7. Development of test protocol: job simulation, fitness components or combination.
8. Standardization of test protocol: including consistent instruction.
9. Establish scientific accuracy of test protocol.
10. Develop performance standards (mean+/-SD) and Evaluate incumbent pass rate.
  - a. Rationally connected to work
  - b. Employed in good faith
  - c. Address adverse impact, accommodation, undue hardship
11. Implement test protocol.
12. Ongoing review: to accommodate the changing workforce.

job and that the standard is reasonably necessary to the accomplishment of that legitimate work-related purpose (Bonneau 2001).

### **Scientific Considerations in Developing a JSPFP**

To qualify as a BFOR, a JSPFP must be valid and reliable. Test validation is customarily accomplished using two well-established approaches. The first, construct validation, refers to scientifically quantifying that the physical demands involved in performing the test are the same as the physical demands that are encountered while incumbents are performing the related on-the-job tasks. The content validity (also called face validity) of a test can be determined by administering a questionnaire to the subject matter experts (experienced incumbent workers) following their completion of a JSPFP. A Likert-type scale

from 1 (strongly disagree) to 7 (strongly agree) is generally used to solicit the workers' perceptions of the "likeness" of the test to the actual on-the-job tasks as well as the appropriateness of the JSPFP to assess the candidate's ability to accomplish the job safely and efficiently.

To establish test-retest reliability, participants undergo a test and retest on the JSPFP on two separate days. A reliable test will produce similar results on the test and retest. Reliability is tested statistically by evaluating the repeat determinations for a high  $r^2$  ( $>0.7$ ) (Fields 2009). Additional steps to enhance reliability include preparing a standardized script for test administrators to follow, routinely maintaining/calibrating equipment and ensuring appropriate test administrator training and related ongoing professional development. Collectively, these initiatives ensure standardized

administration of the JSPF protocol to provide an equal and unbiased assessment of the candidates.

### **Establishing a Performance Standard for a JSPFP**

JSPFPs must embody appropriate standards of acceptability that are the same for all participants. The development of such standards must be based on the performance of experienced safe and efficient incumbent workers (Gledhill 1992). In accordance with the Meiorin requirements, the task simulations must be criterion based - founded on job performance, not based on the physical characteristics of the participants (Gledhill and Bonneau 2001). The landmark Meiorin Decision on BFORs stipulated that, for a fitness test to qualify as a BFOR, the associated performance standard must be based on the performance of any sub-group of workers in that job who perform the job safely and efficiently but have different physical attributes than the majority group of the workers (Supreme Court of Canada 1999). This requirement was made in specific reference to a female claimant whose grievance was the basis of the Meiorin case. Generally, the sub-group of workers who fit the description of this Meiorin requirement are the female incumbent workers.

The statistical computation that is conventionally applied when deriving performance standards for completion of a circuit to qualify as a BFOR is the Mean + 1 standard deviation of the sub-group's circuit completion time, which, in a one-tailed distribution, incorporates 83.3% of the participants' completion times. In addition, it has recently been established that after participants are orientated or familiarized to a JSPFP they have an improvement in completion time of 10-

12% (Jamnik et al. 2010c; Gumieniak 2010) and therefore this improvement is taken into account in calculating a performance standard.

### **Meeting the Meiorin Decision Requirements for a BFOR**

Passing the first two Meiorin Decision tests to qualify as a BFOR is relatively straightforward. If the methodology described above is adhered to, courts will easily be persuaded that a JSPFP and the associated performance standard were adopted "for a purpose rationally connected to the performance of the job" and that the employer "did so in an honest and good faith belief that it was necessary to meet the physical demands encountered by workers on the job". However, passing the third Meiorin test necessitates considerably more attention; the employer must show that it is impossible to accommodate an individual employee who is adversely impacted without imposing undue hardship on the employer.

Adverse impact is defined as; "the circumstance in which group differences in performance, relative to common standard, results in a disproportionate failure rate in a sub-group" (Jackson 1994; Supreme Court of Canada 1999; Eid 2001; Jamnik 2010a). Although the determination of a "disproportionate" failure rate is subject to court judgements, researchers and courts have commonly recognized the 80% rule, which specifies that adverse impact exists when the pass rate of a sub-group of participants is less than 80% of the pass rate of the majority group of participants. When adverse impact is evident, the employer must either accommodate this sub-group or demonstrate that accommodation is not possible because the safety risk of lowering the standard would constitute

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undue hardship (Supreme Court of Canada 1999; Hatfield 2005).

It is important to reiterate that a JSPFP can only be implemented for workers in occupations in which the personal safety, the safety of a co-worker or the general public could be compromised by inefficient performance or failure to complete the required task. If the approach described above is utilized to establish a performance standard, then by design the standard cannot have an adverse impact on the sub-group of female workers. Nevertheless, it is still possible that an incumbent or applicant might not meet the performance standard.

At the BFOR Consensus Conference, it was concluded that if the accommodation provided for adverse impact undermined the due diligence responsibility of the employer, this constitutes undue hardship (Gillis and Darby 2001; Gledhill and Bonneau 2001). JSPFPs are based on critical, physically demanding emergency tasks in which personal safety, the safety of a co-worker or the safety of the general public may be compromised by inefficient performance or failure to complete. Lowering a JSPFP standard to provide accommodation could result in a front line worker being unable to complete critical tasks during an emergency with a possible catastrophic consequence, for which the employer would likely be deemed liable (Gillis and Darby 2001). That is, lowering the performance standard would constitute undue hardship because the employer has a due diligence responsibility to ensure that all workers are capable of meeting the emergency demands encountered on the job (Gillis and Darby 2001; Gledhill and Bonneau 2001). In fact, under the 2004 revision to the Criminal Code of Canada, employers can be deemed criminally

negligent if they fail to take reasonable measures to ensure the safe and efficient performance of workers (Criminal Code of Canada 2004; Jamnik et al. 2010a).

In responding to a claimant's grievance for accommodation from adverse impact, an employer argued at a 2002 Human Rights Commission hearing that participants have the capacity to markedly improve their ability to pass a JSPFP by engaging in both test familiarization opportunities and a customized training program. Citing evidence from the physical fitness training literature, the employer proposed that the resultant improvements would be sufficient to ameliorate the adverse impact on female participants. This argument was accepted and the grievance of the claimant was dismissed by the Ontario Human Rights Commission (Ontario Human Rights Commission 2002). Subsequently, researchers have confirmed experimentally that it is possible through familiarization and physical fitness training to overcome the potential adverse impact of a JSPFP on correctional officer applicants (Jamnik et al. 2010b) and on nuclear power emergency response incumbents (Gumieniak 2010).

### ***Qualifications***

The authors' qualifications are as follows: Robert Gumieniak CSEP-CEP; Veronica Jamnik Ph.D., CSEP-CEP, CSEP-CPT ME; Norman Gledhill Ph.D., CSEP-CEP, FACSM.

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