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CANADA'S PHYSICAL FITNESS STANDARD FOR THE LAND FORCE: A GLOBAL COMPARISON

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The history of the Land Force Command Physical Fitness Standard (LFCPFS) is an interesting reflection of the changing demands on the Canadian Army. Currently, the Canadian Army employs the LFCPFS, a.k.a. the Battle Fitness Test (BFT). Finalized in 1991,[1] the development of this standard began in 1984 with the identification of the CF Land Force Occupational Requirements.[2] Some current members of the Canadian Army will remember back to 1972 when the Army employed a test incorporating elements of muscle strength and endurance, cardiovascular endurance and agility. Following this, in 1977 the CF employed a timed 1.5 mile run with age and gender standards based on the work of Cooper.

In 1978, the Directorate of Military Occupational Structures (DMOS) began to identify and quantify the most demanding tasks of approximately 100 trades in the CF.[3] For the infantry these were determined to be walking, running and crawling with a weapon, marching (with a 20 kg rucksack), loading and unloading material onto trucks, digging trenches, and laying minefields.[4]

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From the mid 1960s to 1980s, the Force Mobile Command (FMC) Combat Readiness Physical Fitness test was a 2 x 10 mile test, performed on two consecutive days, that required soldiers to march out with supplies, stay overnight and walk back the next day; this was the precursor to the Battle Efficiency Test (BET) (A-PD-050-015/PT-001 *Physical Fitness Training in the Canadian Forces*). The mid-1980s brought the BET, which consisted of 2 x 16 km (10 mile) marches, scaling a six-foot wall, jumping an eight-foot ditch and carrying a soldier for 200 m, all performed in full battle gear. There was no "time" requirement for this test, and success was achieved with completion.[5] The BET was followed by the development of a 19 item Indoor Standardized Obstacle Course (ISOC) designed by Jetté et al.,[6] which included running, scaling walls, crawling, pulling, lifting, pushing, and carrying. As of 1991, the ISOC was abandoned due to the need for further validation for its acceptance by the CF,[7] and the LFCPFS was developed and adopted.

A general fitness test was applied to entire CF in 1983, as the CF EXPRES (Exercise Prescription) was developed in agreement with the principle of "universality of service." This test included assessments of handgrip, push-ups, sit-ups and a sub-maximal step test, to be replaced by a 20 m shuttle run introduced in the late 1990s. The EXPRES was designed to predict members' performance on five common military tasks. The EXPRES test is still the primary fitness standard for the Air Force and Navy, and is also used by LFC after two unsuccessful attempts at the LFCPFS.

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Members of the Ville de Quebec are tested on part one of the CF EXPRES test; the 20 m shuttle run

The original tasks included in the LFCPFS were selected by a committee of Army subject matter experts (SME) and approved by Army Council (AC). AC agreed that rather than examine all the trades, or even all the combat arms, a LF member must be physically capable of the physical demands of "infantry" specific duties only. After infantry specific duties were compared to those of the other combat arms, and more demanding tasks were identified in the other three occupations, AC concluded that the most demanding tasks of a "field soldier" were: weight loaded marching, casualty evacuation, digging trenches, and ammo box lifts. The LFCPFS is currently the approved Army fitness standard, and until April 2010 it involved a 13 km march carrying 24.5 kg of equipment, a 100 m casualty evacuation using a fireman's carry on the shoulders, and a trench-dig task requiring the movement of 0.486m^3 of pea gravel. The ammo box lift was not accepted by some locations due to the logistical demand for equipment and is no longer a part of the test battery.

In December 2007, in response to a request from Commander Land Force Doctrine and Training System (LFDTS) submitted in October, the Chief Military Personnel (CMP) tasked Canadian Forces Personnel Support Agency (CFPSA) Human Performance Research and Development to initiate a comprehensive review of the current LFCPFS. Specifically, it was suggested that the new standard consider how tactics and training have evolved from the post-cold war conditions of the early 1990s. While the casualty evacuation component (fireman's carry) was their primary concern, it was determined that this may be an opportune time to re-evaluate all the tasks that make up the LFCPFS.

The Canadian Forces Health and Fitness Strategy launched in 2008 originally instigated the development of Environment-specific fitness standards for the Navy and Air Force, and a review and redesign of

the current LFCPFS. Since then, after two years of research to develop these standards, the need to revisit the five common tasks for the CF was identified. Research will focus on an investigation of the current common military tasks among the three Environments and the development of a revised predictive fitness test (to replace the CF EXPRES), which will reflect the change in physical demands of CF operations since those determined 25 years prior. This project is titled Fitness for Operational Requirements of CF Employment (FORCE).

To provide a bit of insight on the status of the CF relative to other NATO countries requires a review of the current state of the fitness standards for the U.S. and U.K. armies.

Canada and the U.K. employ the same methods of fitness standard development; we must develop our standards based on valid occupational requirements in order for our fitness standards to be defensible in a Court of Law in accordance with Human Rights Legislation. The physical demands of these occupational requirements must be determined in a systematic manner, using a heterogeneous and representative sample of participants, in order to investigate the level of fitness (aerobic or anaerobic) required for each occupation. To develop an "occupational requirement," a standardized method has been established and exercised with a variety of occupational groups[8] including the U.K. military.[9]

As a fitness standard is generally applied to large groups, sometimes predictive tests (such as the CF EXPRES) are desired. However, these predictive tests must contain a significant statistical link to performance on the occupational tasks. Specifically, much military research has attempted to predict load carriage marching performance by means of running performance.[10] After decades of research there is still very little success linking the two. This is most likely because those who have less body mass will perform better at running compared to their heavier counterparts. It has been found, however, that larger individuals perform better on load carriage; as load carriage is less demanding for those who are carrying a smaller percentage of their body mass, smaller persons carry a larger percentage of their body mass at a given load.[11] In general, a run test does not do a good job predicting an individual's ability to perform a heavy load carriage march (an occupational demand). In addition, the relevance of push-ups as a predictor for occupational task performance receives a great deal of criticism.[12] Again, body mass influences performance, as a push-up or a sit-up requires you to move your own mass, therefore disadvantaging larger individuals. However, when required to lift and carry an object (e.g. jerry can, or casualty) the smaller person is disadvantaged.[13]

WHY IS THE U.S. ARMY PHYSICAL FITNESS TEST SO DIFFERENT FROM THE BFT?

The current U.S. Army Physical Fitness Test is not a measure of combat readiness and it is not meant to be.[14] Numerous recent publications from the U.S. Army highlight the disconnect between the Army Physical Fitness Test (APFT) and the real physical demands of combat as determined by their Mission Essential Task List (METL), similar to our Individual Battle Task Standards (IBTS).[15] The MELT requires the U.S. Infantry to possess the following abilities: (1) to raise and carry a 160-pound person on their back, (2) walk, run, crawl, and climb over varying terrain for a distance up to 25 miles, and (3) carry a minimum of 65 pounds evenly distributed over the entire body.[16] Though these tasks are a stated requirement, there is no direct assessment tied to ensuring that each infantryman can perform them. As a result, unless a unit chooses to assess these or similar tasks, there is no practical enforcement of these regulations.[17]

Recently, the 1986 version of the Army Physical Readiness Test underwent a name change to the APFT. This was done in part because the Army's physical fitness doctrine writers realized that the APFT in its current form (the one used today) was not an accurate assessment of combat readiness; in fact, it has been labelled as being more of a **track and field** test than a **battle field** test.[18] A recent review concluded that the current APFT is unduly advantageous to lighter personnel, and despite most physically demanding military tasks being better performed by those with larger lean body mass, these individuals are penalized by the push-ups, running and sit-ups prescribed in the AFPT.[19]

In addition, a predictive physical fitness test such as the APFT has led to a dangerous cycle of testing and training as soldiers adopt a "training for the test" mentality when they should be "training for the tasks." Baker concluded that units are training for the APFT instead of for mission-essential physical tasks;[20] that is, they are allowing the APFT to drive training instead of basing training on mission-essential physical tasks. This is partly due to the fact that rewards are tied to performance on the APFT, such as soldiers earning promotion points and leaders earning bragging rights based on APFT results.[21]

Because of these problems, it has been recommended that the APFT be de-emphasized in lieu of more specific training, and testing be based on divisions' real world missions and areas of operations.[22] In an attempt to have a more occupationally relevant fitness test, the Marines have recently introduced a much more practical Physical Fitness Standard incorporating a timed 800-yard run, repeated lift of a 30-pound ammunition can for two minutes, and movement through a 300-yard course requiring a combat crawl, ammunition resupply, body drag (10 yards though a series of 10 cones), casualty carry, and grenade throw. According to Colonel B. Mcguire, U.S. Marine Corps, the entire test is conducted in combat boots and utility uniforms on over 200,000 incumbents twice annually in an effort to assess soldiers' job-related physical capabilities and move away from the predictive push-ups and sit-ups style testing. The reasoning behind this transition was simply that task-specific testing "ensures we train the way we fight." The APFT may soon undergo a revision; a 2004 report from the U.S. Army Research Institute of Environmental Medicine (USAREIM) indicates that the entry level physical test should be developed through a comprehensive research program that involves well established methods of relating physical fitness to criterion measures important to the military like job performance, injuries, and attrition.

WHERE DOES THE U.K. STAND IN TERMS OF FITNESS TESTING?

To join the British Territorial Army, acceptance into basic training is dependent on performance on the **Basic Personal Fitness Assessment (BPFA)** consisting of push-ups in two minutes, sit-ups in two minutes, and best effort 2.4 km run under 14 minutes.[23] This test is similar to our CF EXPRES, for which all potential recruits have to pass before beginning basic training. After basic training, the British Army recruits have to complete the **Physical Selection Standards (Recruits) (PSS[R])**, which includes a 1.5 mile run, single lift and carry tests, and a four mile loaded march carrying either a 15 kg, 20 kg or 25 kg load depending on their chosen trade, with each test having five pass levels. Access to every post in the Army is dependent on the level of performance. These tests are "gender free." In addition, there is the **Infantry Combat Fitness Test (ICFT),** which requires marching a distance of three miles as a squad, each member carrying 56 pounds of kit including their personal weapon, timed to be completed in one hour. Individuals must stay with the squad, or be failed.

In 1998, after years of research,[24] the U.K. Army introduced the job-related gender-free physical standards (PSS[R]), which used an applicant's scores from three physical measures (height, mass, body composition) and six physiological tests (static arm endurance [SAE], back extension strength [BES], static lift strength [SLS], dynamic lift strength [DLS], pull-ups, and a Multi-stage Fitness Test and/or 2.4 km run time to predict future performance on four job-related Representative Military Tasks [RMTs]). The four RMTs were comprised of: a 1.45 m 25–45 kg ammunition box single lift (SL); a 1.45 m 10–22 kg repetitive lift (RL) for 7–20 minutes; a 60-180 m 2 x 20 kg jerry can carry (Carry); and an four mile loaded march (LM) carrying 15–25 kg, the required standard being dependant upon the applicant's chosen trade.[25] Since the introduction of PSS(R) in 1998, there have been many significant changes in the Common Military Syllabus for Recruits and recently a study was conducted to verify the validity of PSS(R) in light of these changes. The British researchers found that their predictive fitness test (PSS[R]) under-predicts performance on the jerry can carry and the single lift, and over-predicts performance on the loaded march with 20 kg.

The test had to be revised, and it was recommended that the elements which predict the jerry can carry be dropped from the test and replaced with performing the carrying task itself as an entry test, with appropriate pass standards. This study highlights the need for a rolling validation program for physical selection tools, especially when both the final performance standards required and the physical training program undertaken to reach those standards, is subject to continual modification.[26]

In 2008, British researchers attempted to find a link with performance on the 2.4 km run and the four-mile loaded march.[27] They concluded that for the least physically demanding march (15 kg), a 50 kg recruit needs to run 2.4 km in 13 minutes 38 seconds to have a 90% chance of passing the loaded four-mile march during basic training, while a 100 kg recruit needs to run 2.4 km in 16 minutes 29 seconds. This would require the British Military to set a higher standard on the run for lighter individuals, which would be very difficult to implement, and we return our thoughts to how heavier individuals are penalized when tested with traditional methods of exercises using only their body weight (such as push-ups and running), while they excel at the occupational tasks of load carriage.

In comparison with these Allies, Canada is ahead of the game since it has been using occupational tasks for its fitness test for years. This does not come without a price, as the duration of the test is longer, it requires equipment such as the trench dig boxes, and it does not allow for a competitive fitness test (such as comparing the number of sit-ups a unit can complete in 60 seconds). Moreover, it has so far proven un-executable for the Reserve Force due to lack of funding and time for training. It is, however, a valid assessment of the ability to perform the job, and considering the relatively small size of the CF when compared with those of the U.S. and U.K., the CF should continue to assess its soldiers using these methods.

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THE FUTURE OF THE CANADIAN LAND FORCE COMMAND FITNESS STANDARD (LFCPFS)

Currently, the CFPSA Human Performance and Research Development team is responsible for determining if the tasks incorporated in the current BFT (LFCPFS) designed in 1991 are representative of the physical demands for the LF of today.

The team has broken the project into four research questions:

- Is the fireman's carry still relevant as the method of casualty evacuation?
- Is the distance and load of the march still applicable?
- Is the assessment of field craft (dig a trench) still relevant?
- Are there any physical demands that the LF is facing that are not captured in the current LFCPFS?

TASK 1: IS THE FIREMAN'S CARRY STILL RELEVANT AS THE METHOD OF CASUALTY EVACUATION?

Casualty evacuation (CE) is a common physical demand found in occupational physical fitness standards.[28] Without an assessment of the physical capability to perform a CE, there is little confidence in a team that all team members will be able to rescue them in the event of an incident. Original research to develop the LF fitness test evaluated a sample of subjects on the fireman's carry component, wherein a soldier of "like size" was carried 100 m around a gymnasium in 60 seconds (determined by subject matter experts [SMEs]). However, during the past two years the research team had to determine: (1) the most common methods of CE currently employed on exercise and in theatre; (2) the performance of LF personnel conducting the CE; and (3) if there are fitness tests which would predict CE ability.

To determine the most relevant and common methods of CE, the team examined the most frequent methods employed to evacuate a casualty out of direct fire from the enemy. Recent reports from CF personnel indicated that a high frequency of casualties was sustained during convoy operations. This anecdotal information, paired with data from the Personnel Protection Systems Group—reporting as of October 2009 that 90% of those wounded in action (WIA) were injured in a vehicle—brought to the research team's attention that crewmen must be able to lift their injured counterparts and manipulate them through the hatches of the vehicle.[29] As current operations require elements of the combat arms and support trades to work and travel together in armoured vehicles, such as members from the Provincial Reconstruction Team (PRT) and Counter IED (C-IED) teams, the need to be physically capable of performing a CE from a vehicle is significant.

The results of interviews with SMEs (N=12) identified that, in theatre, vehicles were involved in 45% of CE scenarios and that vehicle extrication (VE) through a hatch was the most prevalent method of extrication. Dragging was utilized in 25% of incidents and the fireman's carry was not used. Observations on exercises across Canada in 2008/2009 identified that dragging a casualty (casualty drag [CD]) was the most common method for one soldier to perform a CE, and that the fireman's carry was not a method commonly chosen. Of 158 CEs witnessed, the majority were performed without a stretcher and involved dragging. Moreover, approximately one-fourth of all CEs involved a vehicle, with the majority of these incidents requiring extrication of the casualty through a hatch.

SME feedback confirmed research findings that a 25 m drag by the tactical vest is the most common first response CE method used in theatre and exercise. It was also confirmed that VEs should be assessed in the fitness standard due to the high prevalence of casualties inside a vehicle.

Therefore, the casualty drag (CD) and the vehicle extrication (VE) were the two most commonly observed and reported methods of casualty evacuation (CE), and for which a modification to the LFCPFS should test LF members' ability to perform both. The CFPSA administered research tests of performance on both these methods to a heterogeneous sample of subjects (N=118 LF members) to assess each individual's ability to perform to maximum:

- Vehicle Extrication (VE).
- Casualty Drag (CD).
- Predictive Fitness Tests (PFT)—seven fitness tests measuring strength and endurance of specific muscle groups: push-ups, grip strength, grip endurance, static squat, static row, wall sit, and vertical jump.

It was considered that performance on push-ups would not be related to performance on CE; nevertheless, because push-ups are included in the CF EXPRES and the APFT, the performance was measured in anticipation of questions from Army personnel relating to the relevance of push-ups as a predictive test.

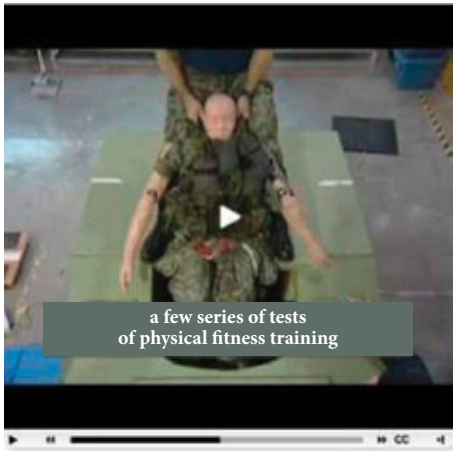
The average Canadian LF soldier has a mass of 82 kg without clothing.[30] Using this mass as a performance reference, the percentage of LF personnel who could recover this mass with a CD and VE

was measured. A mannequin of 82 kg could be recovered by 83% of subjects when performing a VE and 88% of subjects when performing a CD of 25 m. The research team recognized that fitness testing on vehicles was not practical, and determined that by combining a soldier's ability to perform the CD, grip strength and static squat, the ability to perform a VE could be predicted. Therefore, this phase of the research identified that if a member demonstrates that they can drag an 82 kg mannequin for 25 m by the tactical vest using a posture similar to that used when dragging humans, there is confidence that the member can also perform a VE. The Army expressed that for practical purposes soldiers will likely be dragging soldiers and not mannequins for this test; consequently, further research was performed and determined that the force requirements of dragging an 82 kg soldier on asphalt is equivalent to dragging a soldier weighing no less than 70 kg (154 lbs) a distance of 25 m on grass.

The following links to Army News provide videos of the fitness testing research process:
"Army test fitness levels versus field requirements"—
http://www.army.forces.gc.ca/land-terre/news-nouvelles/story-reportage-eng.asp?id=3255

"Drag rescue becomes new standard method for moving injured"—
http://www.army.forces.gc.ca/land-terre/news-nouvelles/story-reportage-eng.asp?id=4165

Army test fitness levels versus field requirements



Drag rescue becomes new standard method for moving injured

Or for more info please visit the website:
http://lfdts.kingston.mil.ca/ArmyFitness/protcol-eng.asp

TASK 2: IS THE DISTANCE AND LOAD OF THE MARCH STILL APPLICABLE?

It is fair to say that load carriage/marching remains a valid component of the LFCPFS. A recent survey of personnel at CFB Edmonton, CFB Valcartier, and CFB Shilo, showed that 63% of the 936 respondents indicated that they are marching **on base** *sometimes or more*. Additionally, the fact that only 39% of these reports came from combat arms personnel further affirms that most LFC trades are required to march on base, presumably for testing and physical training.

An interesting and somewhat unexpected point is that of the 352 respondents who reported marching *sometimes or more* in **theatre**, only half were combat arms personnel. These results indicate that 53% of respondents who had been required to conduct dismounted operations in theatre came from support

trades. A similar ratio of combat arms / support personnel reported marching *sometimes or more* **on exercise** (N=496). In addition, 51 CF soldiers who recently returned from Afghanistan reported that load carriage/marching in theatre was broken up into patrols of shorter distances than that of the 13 km LFCPFS, but performed with more weight.

To determine more specific requirements, the research team will be attending various dismounted exercises in Canada and equipping soldiers with small GPS devices to collect speed and distance walked over a number of days. To measure weight loads, soldiers will also be asked to carry a small, hand-held digital scale and to measure their rucksack load each day.

TASK 3: IS THE ASSESSMENT OF FIELD CRAFT (DIG A TRENCH) STILL RELEVANT?

The dig component of the LFCPFS seems to be the most resource intensive test component, since it requires the use of standardized dig boxes which may not be available at all CF Bases. In addition to the need to replenish pea gravel, the test standard requires specific pacing, as it stipulates that an individual must independently dig 0.486 m^3 of gravel from one standardized container to another with a standard shovel in 360 seconds or less.[31] It is important, therefore, that evaluators understand the research from which the test was developed and provide appropriate cues during testing. The 2006 IBTS indicate that a CF soldier must be capable of performing individual field craft, including a requirement that "all personnel must maintain skills with a shovel, pick axe, machete, and build and improvised shelter."

A recent report by Defence Research and Development Canada (DRDC)[32] followed training with 1st Battalion, The Royal Canadian Regiment (1 RCR), in a scenario including 2 Canadian Mechanized Brigade group (2 CMBG), the 3 RCR, and the Royal Canadian Dragoons (RCD). Soldiers were reportedly digging shell scrapes, (digging to Stage 2 and 5), as well as digging crawl and communication trenches. It was reported that "the sentry is relieved every 30 minutes so that he can take his turn digging the trench." This report indicates that preparing a defensive position required digging deep enough to provide cover for a prone soldier.

Results from the task analysis survey described previously indicated that very few respondents reported digging large holes "sometimes or more" in any environment. Seventy percent of digging reported in theatre was performed by combat arms personnel. Interviews with 51 soldiers who recently returned from Afghanistan indicated that 39 soldiers participated in digging on exercise and 28 participated in digging in theatre. Digging on exercise was primarily limited to digging trenches or shell scrapes and filling sandbags, compared to digging in theatre, which was described as being primarily for filling sandbags and building fortifications. Moreover, very few soldiers reported digging in theatre to build shell scrapes or trenches. More research is required to establish the fate of the dig component in the LFCPFS. Current opinion is that there may be a more relevant way to assess physical ability to perform field craft.

TASK 4: ARE THERE ANY PHYSICAL DEMANDS THAT THE LF IS FACING THAT ARE NOT CAPTURED IN THE CURRENT LFCPFS?

To identify changes in the physical demands of the LF over the past 20 years, it is important to consider changes in LF involvement in humanitarian efforts, peacekeeping, conflict resolution, counterterrorism, and wartime efforts, as well as training.

Under the direction of LFDTS, and with the understanding that through Lessons Learned training will reflect the demands of theatre, research began with an analysis of the physical demands of exercises across the LF. After attending exercises across the country (Wainwright, Petawawa, Kingston, Valcartier, and Gagetown), it became evident to the Human Performance Research Team that several training exercises were conducted in newly constructed "built-up areas" (to support fighting in built-up areas [FIBUA]). With further research, and through consultation with LFDTS and the Project Management Team (PMT), an investigation began into: (1) the prevalence of training for and conducting operations

in built-up areas for LFC; and, (2) the physical demands of a generic, skill-free simulation of an urban operations exercise for which all LFC members should be physically capable of performing.

Answering these questions required the research team to progress through the following stages:

- Construction of a working group of SMEs to aid in the development of the simulation.
- Observation of relevant urban operations in Canada.
- Construction of a generic/skill-free urban operations simulation.
- Measurement of the physical demands for a heterogeneous subject group to complete the simulation.
- Validation by the SMEs and verification of the pace of the simulation.
- Quantification of the physical demands of the simulation at the agreed pace (research is currently at this phase).
- Comparison of these physical demands to the demands already required for the LFCPFS.
- Presentation to the PMT and LFDTS of the results as to whether the current LFCPFS captures the fitness requirements of urban operations.

Stage 6 requires the measurement of the physical demands of the LFCPFS at the minimum acceptable pace. If the current LFCPFS does not test the physical demands of urban operations, then the research team needs to:

- Develop potential tests to be included in the LFCPFS that will physically tax the individual in the same manner as the urban operations simulation, without the demand for access to an urban operations site.
- Measure a larger sample of subjects conducting the simulation and the potential physical fitness test to compare the physical demands of each; ultimately therefore, to assess the validity of the physical fitness test.
- Assess the adverse impacts on LFC if the LFCPFS were modified to include this physical fitness test.

If the physical demands of urban operations are already being tested by the current LFCPFS, then it can be concluded that if one is capable of the LFCPFS they are physically capable of completing urban operations exercises without physical limitations. From the data obtained on Stage 4, which involved five four-person teams, it can be concluded that this particular simulation required very high physical demands, with heart rates reaching as high as 204 beats per minutes (bpm).

Photographs taken during the urban operations simulation in which metabolic demands (oxygen uptake and heart rate) were measured on the soldiers

CONCLUSION

In conclusion, the Canadian Army currently administers an occupationally relevant fitness standard, and yet an occupational standard such as the current Land Force Command Physical Fitness Standard (LFCPFS) must undergo constant review using only the most defensible methods to determine that appropriate standards are being applied. To ensure that the members of LFC are physically ready to meet the demands of performing their jobs, the Canadian Forces Personnel Support Agency (CFPSA) Human Performance Research and Development team looks forward to seeing its recommended changes implemented within the next few years, as was the case with the casualty evacuation component. Such changes help to provide a level of confidence within a team, prevents discrimination, and ensures a duty of care; fitness should not be a weak link.

In addition to future changes in the LFCPFS, the EXPRES will undergo review and revision. Recent discussions involving the three Environments suggest that the new standard (Fitness for Operational Requirements of CF Employment [FORCE]) should better prepare CF members for pre-deployment training and the current demands of operations. This research requires the continued measurement of the physiological demands of all CF occupations and the development of a valid, reliable, and sensitive occupational fitness assessment tool.

ABOUT THE AUTHOR...

Dr. Tara Reilly is the Human Performance Research Manager for Director General Personnel and Family Support Services (DGPFSS). Dr. Reilly is involved with research involving fitness standards for the CF and more specifically the Land Force. She achieved her Doctorate in Occupational Physiology in the U.K., which required the design and implementation of a fitness standard for the Royal National Lifeboat Institution (RNLI), with 233 lifeboat stations and 4,500 crew members. She was also responsible for developing a fitness standard for Surf Lifeguards in the U.K., as well as involved in developing fitness standards for the Offshore Oil Industry and the Coast Guard. Dr. Reilly has worked in the field of environmental physiology, emergency and survival physiology, ergonomics, as well as sports and exercise science. She also achieved a Master of Science (MSc) degree from Dalhousie University in Halifax where she worked in the Research and Development department at Survival Systems. Dr. Reilly is currently working as a part of a larger research team to develop the Fitness for Operational Requirements of CF Employment (FORCE) standard, and she will continue to suggest future modifications to the Land Force Command Physical Fitness Standard (LFCPFS), with the help of her Research Assistant, Ms. Simone Olinek, and the Army Physical Fitness Manager, Ms. Mary-Beth McGinn.

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