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## Human Performance Optimization in CANSOFCOM and the CAF

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**Human Performance Optimization in CANSOFCOM and the CAF**

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## **ABSTRACT**

The Canadian Armed Forces (CAF) serves to defend Canada and its interests at home and worldwide. Soldiers, sailors, and aviators spend countless hours training for operations, procuring equipment, and ensuring policies and monies are aligned for global deployments. Where the CAF lacks focus is in its most critical resource: its people. The CAF fails its members by neglecting basic human performance optimization (HPO) initiatives. It is only through focusing on treating humans as the most important hardware that the institution will truly reach its full potential throughout the spectrum of conflict.

Myriad issues throughout the CAF permeate all domains in the holistic fitness and wellness model: physical, mental, and family/social/spiritual health. An overarching problem in the HPO realm is the lack of established structure and governance to synchronize and coordinate HPO effects at various levels. There are not enough physiotherapists to treat injuries in the physical realm, let alone provide preventative treatment in the physical health realm. Healthy options in CAF messes are still lacking. There is little monitoring of pertinent blood markers and biofeedback through wearable devices to measure performance, longevity, and nutritional deficiencies. Compounding the lack of health focus in CAF mess facilities, there is no supplement policy to promote and provide safe and effective supplements to CAF members to improve the deficiencies that are rarely measured in the first place.

In the mental health domain, a dearth of psychologists leads to months' long wait times to seek help. Mental performance consultants (MPC) for coaching and resilience training are almost non-existent in the CAF. Socially and spiritually, the CAF still lacks

coherence in promoting a family network. Chaplains are underutilized, and CAF members' families still do not feel they have the institution's requisite support.

These issues are all solvable. Firstly, an established structure and governance with codified C2 must be created to synchronize effects, led at every level by an HPO Integrator (HPO-I). Nutrition and supplement policies can be written to provide safe and effective supplements and better nutrition to CAF members. Physical health blood marker testing can be implemented with modest funding. The mental health domain needs a longer-term sustainable approach to staffing as hiring more civilian psychologists will take time to achieve, but mental health contracted service use can be increased easily. Spiritually and socially, unit in-briefs and deployment briefs should be incentivized more for family members (such as tying a family day into a pre-deployment brief). Finally, chaplains must be more holistically involved in the mental health domain and work with psychologists and social workers to improve CAF members' mental and spiritual well-being, both in garrison and while deployed.

Improvements to HPO will not be a panacea to solving all the personnel issues in the CAF. However, every step in the right direction will show CAF members that the institution truly values its humans as the most important hardware.

## **HUMANS ARE THE MOST IMPORTANT HARDWARE: HUMAN PERFORMANCE OPTIMIZATION IN CANSOFCOM AND THE CAF**

### **INTRODUCTION**

*“The man is the first weapon of battle. Let us study the soldier, for it is he who brings reality to it”<sup>1</sup>*

– Ardant du Picq, French Army Officer and Military Theorist, 1870

Warfare has existed and evolved long before the notions of contemporary conflict have permeated our consciousness. Images of tanks and infantry manoeuvring and long contiguous lines of foot soldiers standing in ancient Mesopotamia prepared to confront each other in battle are considered modern from the paradigm of evolutionary conflict. As far back as the emergence of Homo Sapiens and the tremendous cognitive revolution that the species undertook to form tribes of more than 150, warfare has been present. In his book *Sapiens*, Yuval Harari argues that Homo Sapiens’ cognitive abilities allowed them to create narratives (the genesis of spiritualities) to coalesce in larger groups for the primary purpose of defeating other species such as Neandertals. From the beginning of the species, warfare has been rooted in human physical, mental, and spiritual performance.<sup>2</sup>

In warfare, because conflicts are fought with humans at the core, human performance improvement equates to warfare improvement. In more rudimentary conflicts involving only the most minimalistic weapons (sticks, rocks, clubs, etc), the strength, endurance, cognitive capacity (think of Homo Sapiens vs. Neandertals), and general vitality were predictive measures of successful conflict outcomes. The bigger, stronger, faster, and wiser the tribe was, the greater odds of winning the battle.

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<sup>1</sup> Amy B. Alder and Carl B. Castro, "OPTEMPO: Effects on Soldier and Unit Readiness," *Parameters* 29, no. 3 (1999), 86. <https://go.exlibris.link/NMqFB7HT>.

<sup>2</sup> Yuval Noah Harari, *Sapiens: A Brief History of Humankind* (New York: Harper, 2015), 27.

As societies evolved through the ages, warfare became increasingly reliant on technology. In Alexander the Great's conquering of the territory East of Macedonia, stone-throwing catapults greatly aided his destruction of adversarial infrastructure.<sup>3</sup> In more modern history, World War I saw the tank's development, production, and use between 1914 and 1918, providing a definitive advantage to the allies.<sup>4</sup> World War II technology development was rapid on both sides. The development of the atomic bomb was the most astonishing, which ended the war and set the arms race stage for decades to come. In the current warfare paradigm, advanced nations' military members can use drones to kill high-value individuals (HVIs) during a routine 8-hour workday and still pickup milk on the way home for supper.

Due to the rapid technological modernization of specific CAF capabilities, emphasis on procurement of weapons and equipment has placed increased focus, money, and personnel in the realm of CAF Force Development (FD). Subsequently, the relative importance of humans as warfighting implements has diminished. Furthermore, CAF personnel have been overextended from increasing domestic operational tempo and international deployments despite manning deficiencies and continuous stress from balancing work and family concerns, amplified during the COVID-19 pandemic.<sup>5</sup> The CAF has well-developed mechanisms to train and deploy soldiers, sailors, and aviators on operations domestically and internationally. However, the question arises whether the CAF has a similarly codified and focused approach to maintaining an elevated level of

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<sup>3</sup> John Keegan, *The Mask of Command* (New York, NY: Penguin, 1988), 62.

<sup>4</sup> Elizabeth Greenhalgh, "Technology Development in Coalition: The Case of the First World War Tank," *International History Review* 22, no. 4 (2000), 806.

<sup>5</sup> The Canadian Press, "Military Dealing with More than 10,000 Unfilled Positions Amid Growing Pressures," *The National Post*, January 18, 2022. <https://nationalpost.com/pmnn/news-pmnn/canada-news-pmnn/military-dealing-with-more-than-10000-unfilled-positions-amid-growing-pressures>.

resilience and outputs from all its members throughout their careers. This issue is particularly germane to CANSOFCOM, as the formation spends considerable time and resources training and qualifying its members and desires to optimize their outputs and maximize the longevity of their careers. Moreover, this paradigm has given rise to a focus on total health and wellness, which serves to optimize the human performance of the formation's members.

In the footsteps of allied programs, such as the United States Special Operations Command (USSOCOM) Preservation of the Force and Family (POTFF) program, operating since 2010, the CAF has also developed a more holistic physical health program. The BALANCE strategy is the CAF's initial response to improve HPO across the institution. Additionally, the development of total health and wellness programs within CANSOFCOM has realized its creation in Optimizing Performance of Force and Family (OPF2). While CANSOFCOM's OPF2 program is the most codified holistic health and wellness program in the CAF, are there deficiencies in the structure, governance or domain implementation that can be optimized? Can HPO programming across the CAF take best practices from OPF2 and apply them to the greater institution? This paper will examine OPF2 and CAF health and wellness programming sub-optimizations and provide recommendations to rectify these issues.

One of the key issues to be questioned is whether the structure and governance of CAF and CANSOFCOM HPO is appropriately organized. CANSOFCOM has been delivering health and wellness programs for its members longer than OPF2 has existed, and the structure of OPF2 had to be retrofitted to match the tactical care provided. As the CAF will be in the same paradigm of setting up an HPO structure after providing care has

been ongoing for years, the organization and governance of the HPO leadership and domains must be given careful consideration and based on OPF2 lessons learned. What domains should be included in a comprehensive CAF HPO program? What metrics and standards are the programs trying to achieve on the individual and collective level? Lastly, and arguably most important, who should be in charge?

Physical fitness is engrained in the CAF ethos, but is it truly a core tenant of every CAF member? <sup>6</sup> A visit to a CAF mess may not result in the impression that the CAF values nutrition as much as other high-performance organizations such as professional sports teams. A lack of supplement policy within the CAF and the decreased focus of CAF Medical Officers on treating disease and injury vice prevention may further question how core the tenant of fitness remains in the institution. Additionally, are there adequate physiotherapy resources to treat operational and training injuries inevitably suffered by CAF members? Does the CAF indeed ascribe to physical fitness as engrained in *Duty with Honor*? If not, what can be done to improve this paradigm?

More germane to the current situation in the CAF is the mental health crisis caused by a high operational tempo, the COVID-19 pandemic, and the collision of these two issues in CAF members' and their families' lives. The CAF has several programs to focus on recognizing mental health issues and improving members' mental state of being. However, are these programs enough to treat the mental health of CAF members, buffer resilience against mental injury and optimize mental performance? Furthermore, are there adequate mental health and mental performance resources for CAF members to receive their care? CANSOFCOM has a relatively high number of resources for mental health

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<sup>6</sup> Chief of Defence Staff, *Duty with Honor* (Ottawa: Canadian Defence Academy,[2009]).



compared to the CAF, but the question remains if this is a satisfactory amount to provide resilience across the formation. Especially given the stress caused by operating in a COVID-19 environment, CAF members' mental health and performance are as important as physical health and performance, and if there are inadequate resources and focal points placed in this domain, the risk to the CAF force will remain high.

In addition to considering whether the mental health domain is appropriately resourced, do the family/social/spiritual domains have the correct weight of effort placed upon them? Juxtaposed against US military culture where US servicepeople's families more readily speak of themselves as part of the unit or sub-unit, how supportive and closely knit is the CAF family network? <sup>7</sup> CANSOFCOM's OPF2 program focuses more precisely than the CAF on improving family quality of life and taking stock of issues from spouses. However, is there space within CANSOFCOM to improve their outputs to coalesce support in the family/social/spiritual domains? Whether in CANSOFCOM or the greater CAF, when families do not feel supported or work seeps into family life, issues can ensue, and members need increased mental and spiritual support.

Given the earlier introspections, the broad question remains whether CAF HPO programming requires a holistic re-evaluation. This paper provides that analysis, drawing out a roadmap including a review of current HPO programs in the CAF and allied militaries, identifying deficiencies within each realm, and recommending solutions for each problem identified. If the CAF genuinely believes that people are its central focus, it must operate, plan and resource their optimization.

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<sup>7</sup> Author's experience while on exchange with USSOF, 2016-2017.

## **Methodology**

This paper will be divided into four chapters. The first chapter will define human performance and provide an overview of human performance programs within CANSOFCOM, the CAF, and other allied nations to establish a baseline military organizations' policies and resources related to HPO. The second chapter will examine HPO programs in CANSOFCOM and the CAF to identify certain facets of the programs that may be sub-optimized. The third chapter will discuss recommendations that can be implemented to truly optimize these HPO programs and maximize the longevity of CAF and CANSOFCOM members. Finally, the fourth chapter will discuss the future of human performance and technological leaps that will integrate humans and machines more entirely and potentially provide step-function gains in the realm of HPO.

The research methodology used for this paper draws from primary and secondary information sources. Primary sources include a combination of information from peer-reviewed journals, CANSOFCOM OPF2 research studies, and subject matter expert (SME) interviews with individuals involved with HPO programs within CANSOFCOM and the CAF, as well as various CAF and CANSOFCOM leaders. Secondary sources include newspaper articles and websites.

## **Assumptions**

When authoring this paper, the author assumes that the programs discussed in this paper are currently represented as of May 2022. All initiatives that respective HPO programs have implemented throughout the research will be characterized as such. It is also assumed that interviews with Subject Matter Experts (SMEs) within various HP domains represent institutional views and optimization of services provided to CAF

members. Finally, it is assumed that CAF senior leaders recognize the importance of HPO within their respective organizations, at least philosophically. Therefore, any author-discussed perceived shortcomings in the development, implementation and delivery of HP programs result from policy, financial or human bandwidth limitations and not from complacency or deliberate avoidance of the issue from CAF leaders.

## CHAPTER 1 – WHAT IS MILITARY HUMAN PERFORMANCE

*“Guns and tanks and planes are nothing unless there is a solid spirit, a solid heart, and great productiveness behind it”*<sup>8</sup>

– General Dwight D. Eisenhower

The CAF and CANSOFCOM can very easily quantify tactical requirements; Individual Battle Task Standards (IBTS), Road to High Readiness Training (R2HR), and other tactical, operational, and strategic standards that CAF members and organizations at all levels must achieve on an annual or pre-deployment basis.<sup>9</sup> However, pertaining to human performance standards, apart from annual fitness tests, there is an evident lack of standards in many domains of HPO. This chapter aims to define HPO in broad terms and examine CAF and allied HPO programs and the various facets contained within each organization.

The issue of HPO codification continues to go unresolved as the CAF struggles to deal with many other institutional issues, including the lingering effects of COVID-19, allegations of sexual harassment, and recruiting and retention issues. At the strategic, operational, and tactical levels, if the CAF further codifies HPO, many other institutional issues may find resolution through a stronger focus on humans.

Looking retrospectively, one can see that the concept of HPO has roots in medicine and disease prevention. Drs. George Engel and John Romano developed the biopsychosocial model in 1977 as a new paradigm to characterize health and wellness. The traditional model for codifying wellness and sickness previous to 1977 was through a biomedical lens, looking solely at the physical realm to diagnose and treat disease. The

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<sup>8</sup> "Dwight D. Eisenhower Quotes," accessed February 18, 2022, <https://quotefancy.com/dwight-d-eisenhower-quotes>.

<sup>9</sup> Examples of organizational standards that CAF implements includes validation standards for exercises at distinct levels (Sub-Unit, Unit, and Formation) and operational declarations for deploying formations.

biopsychosocial model brought in a sphere of psychological factors (behavioral health, stress, and mental predispositions as examples) and social factors (family situation and friend group as examples). This new model encouraged care providers to look more holistically at the root causes of disease and recognize that these other two facets of health are critical to aggravation or mitigation of disease.<sup>10</sup> Intuitively, this model has developed to frame the sickness to wellness paradigm and the wellness to fitness paradigm (more accurately described as peak performance) upon which HPO is based.

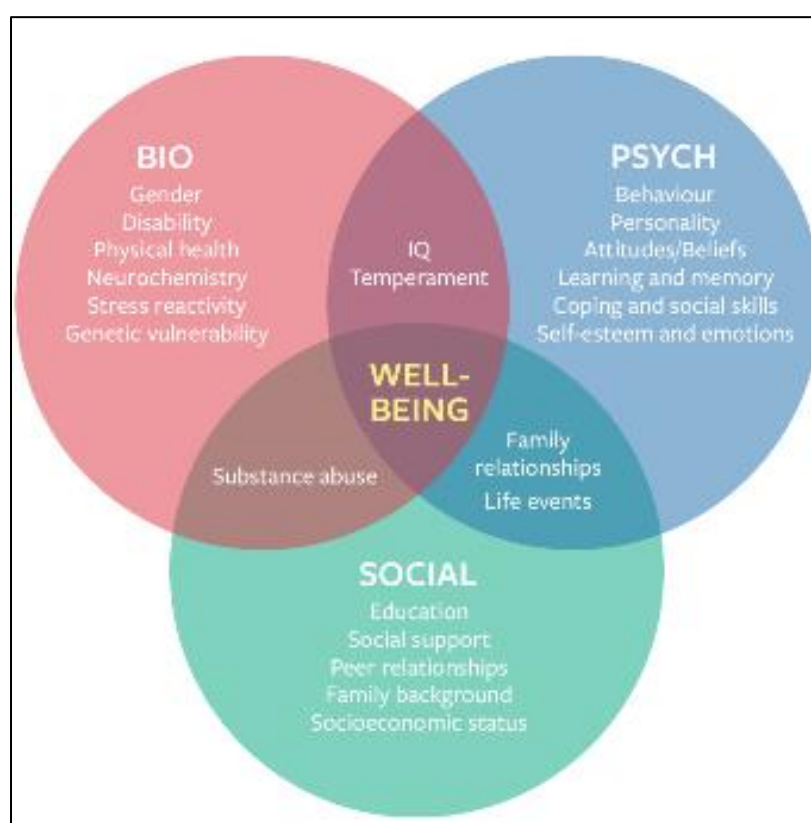


Fig. 1- Drs. Engel and Romano's Biopsychosocial Model<sup>11</sup>

<sup>10</sup> George L. Engel, "The Need for a New Medical Model: A Challenge for Biomedicine," *Psychodynamic Psychiatry* 40, no. 3 (2012), 378-379. <https://go.exlibris.link/S2GgwTNf>.

<sup>11</sup> "The Alarming Hijacking of the BioPsychoSocial Model," last modified April 24, accessed November 17, 2021, <https://www.hgi.org.uk/news/latest-news/alarming-hijacking-biopsychosocial-model>.

As HPO has become more pervasive in health practitioner communities and professional sports teams, military organizations, especially SOF formations, have noticed. Many SOF organizations analogize themselves as akin to professional sports teams, and therefore, the professional sports HPO model has naturally integrated into SOF and military culture in the last decade.<sup>12</sup> Depending on the organization, HPO can include several domains and aspects. For example, in one paper written for the US Department of Defense (DoD) and published in the *Journal of Strength and Conditioning Research* in November 2015, HPO is defined as “the process of applying knowledge, skills and emerging technologies to improve and preserve the capabilities of military members and organizations to execute essential tasks.”<sup>13</sup> For argument in this current paper, the author defines HPO as synonymous with total health and wellness since all health domains improve CAF members' well-being, performance, and operational outputs. The aforementioned HPO statement is broad, but this baseline can frame a more nuanced discussion about how HPO should be defined in the CAF and CANSOFCOM. The proceeding sections of this paper will provide an overview of holistic health and wellness programs at the strategic level (Defense Team (DT) Total Health and Wellness Strategy [THWS] and CAF BALANCE strategy), operational level (CANSOFCOM's Optimizing Performance Force and Family [OPF2]) and allied programs (including USSOCOM and Special Operations Command Australia [SOCAUST] HPO programs).

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<sup>12</sup> The author disagrees over the SOF operator to professional athlete analogy, since the average career of a professional sports athlete is 3-5 years while an operator's career is 15-20 years and different foci need to be prioritized.

<sup>13</sup> Bradley C. Nindl et al., "Military Human Performance Optimization and Injury Prevention: Strategies for the 21st Century Warfighter," *Journal of Science and Medicine in Sport* 20 (2017), S1. <https://www-proquest-com.cfc.idm.oclc.org/docview/2127345263?pq-origsite=summon>.

## Defense Team Total Health and Wellness Strategy

The framework for the health and well-being of the civilian and military members of DND is the DT Total Health and Wellness Strategy (THWS). This framework was released in Feb 2022 and is a significant step in defining holistic wellness at the ministerial and strategic levels. The framework has the mission to “empower Defence Team members with the conditions, knowledge, and support necessary to improve their wellness in pursuit of personal and organizational goals” and the vision for “a safe, fit and resilient Defence Team that is empowered to achieve its mission, confident in its ability to fulfill its potential, and enabled to balance the competing demands of work and life.”<sup>14</sup> In addition, the framework encompasses many health and wellness strategic objectives under five Lines of Effort (LOE) [bolding is the author’s]:

**LOE 1: COMMUNICATE, EDUCATE, COLLABORATE** - The Defence Team Total Health and Wellness Strategy will enhance existing health promotion programming with the inclusion of new communications and educational approaches...Improving the use of programs and services, an integrated health and wellness communications and education strategy will be developed to increase awareness of policies, programs and services. Institutional health and wellness champions will be engaged to ensure greater engagement at all levels of leadership and across the DND/CAF.

**Strategic Objective 1.a.:** Increase knowledge of health and wellness through collective promotion activities.

**Strategic Objective 1.b.:** Increase health and wellness literacy through harmonized training and education.

**Strategic Objective 1.c.:** Engage champions and advocates to promote wellness.

**LOE 2: STRENGTHEN GOVERNANCE** - A strong, healthy workforce requires that organizational structures be put in place for greater alignment and integration of health and wellness into organizational priorities. This strategy calls for the implementation of the Total Health and Wellness Governance Framework to support a reciprocal bottom-up/top-down approach...Monitoring and measurement activities will adopt a GBA+

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<sup>14</sup> Chief of Defence Staff and Deputy Minister National Defence, *Defence Team Total Health and Wellness Strategy* (Ottawa: Department of National Defence,[2022]).

approach to ensure gender and other determinants of health are tracked, where possible.

**Strategic Objective 2.a.:** Engage leadership through the DT-HRC Total Health and Wellness Sub-Committee.

**Strategic Objective 2.b.:** Integrate Base and Wing health and wellness committees.

**Strategic Objective 2.c.:** Build a health and wellness monitoring framework for continuous improvement.

**LOE 3: ENABLE A HEALTHIER WORKPLACE** - A fit and resilient Defence Team requires a work environment that supports the pursuit of wellness. The National Standard of Canada for Psychological Health and Safety in the Workplace (the National Standard) sets the necessary conditions for the promotion of mental health and prevention of psychological harm at work. The Defence Team Total Health and Wellness Strategy endorses the National Standard and provides the necessary framework to improve the psychosocial work environment for the DND/CAF, which includes: Addressing the main stressors which impact productivity (e.g., workload, autonomy, competence), Creating a healthy workplace culture, Supporting diversity and inclusion, Eliminating racism, discrimination, harassment, violence and sexual misconduct, and Empowering change through leadership in the organization. We will also promote a culture of wellness to ensure every member of the Defence Team is empowered and engaged in workplace wellness initiatives.

**Strategic Objective 3.a.:** Employ continuous assessment-to-solutions approach to understand the needs of the workforce.

**Strategic Objective 3.b.:** Address workplace stressors to increase workplace well-being.

**Strategic Objective 3.c.:** Empower leadership to better balance organizational demands and the needs of their people.

**Strategic Objective 3.d.:** Embrace a culture of wellness.

**LOE 4: IMPROVE ACCESS TO CARE AND SUPPORT** - No pursuit of wellness outcomes can be realized without access to the resources required to impact change...The goal of this line of effort is to improve equity of access. Equity of access means reasonable and fair access to care and support services that is based on the needs of individuals...The standardization of programs and services across Canada, to the extent possible, is necessary to provide equity of service to all Defence Team members, regardless of geographical location.

**Strategic Objective 4.a.:** Improve availability of services to meet the wellness needs of all Defence Team members.

**Strategic Objective 4.b.:** Increase accessibility to programs and services across the Defence Team.

**Strategic Objective 4.c.:** Identify and reduce barriers to Total Health and Wellness.

**Strategic Objective 4.d.:** Enable women's long-term health and ability to excel in their chosen occupation.



**LOE 5: ALIGN AND INTEGRATE** - A deliberate approach to health and wellness requires a collective effort in support of a fit and resilient Defence Team...This approach must be supported by an aligned and consistent suite of policies, procedures, programs and services at both the holistic and at the dimensional level. The Defence Team Total Health and Wellness Strategy calls for a systematic review of policies and programs to ensure any gaps are filled and any unwanted redundancies are addressed.

**Strategic Objective 5.a.:** Increase Total Health and Wellness stakeholder collaboration for a comprehensive approach to health and wellness.

**Strategic Objective 5.b.:** Conduct a policy review to ensure relevant and responsive guidance and direction.

**Strategic Objective 5.c.:** Conduct a review of total health and wellness programs to improve alignment and integration.<sup>15</sup>

Several health and wellness aspects are critical to this program, including

individual physical, mental, and ethical/spiritual health and wellness, the state of one's

psychosocial and physical work environment, and the state of one's family,

social/cultural connections, financial situation and physical environment in their personal

life.<sup>16</sup> The below diagram conveys the THWS holistic model.



Fig. 2- Defense Team THW SF Health Dimensions<sup>17</sup>

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*

<sup>17</sup> *Ibid.*

Each of the five LOE and strategic objectives is associated with key actions, outcomes, timelines, and the organization responsible. A complete list of the metrics associated with each LOE, and strategic objective is included in Annex A. This THWS serves as the overarching strategy from which the CAF can build a DND member-specific framework to guide the operational formations in developing their human performance optimization strategies.

### **The BALANCE Strategy: Human Performance in the CAF**

Until recently, physical fitness in the CAF was measured through a series of simplistic metrics: Battle Fitness Tests (BFTs) with a simple pass/fail time; shuttle runs, grip strength tests, and other pass or fail tests that did not give an optimized normalization curve of the fitness levels within the CAF. In 2013, the CAF refreshed the fitness standard, implementing the FORCE test.<sup>18</sup> This is a four-task test modeled on tasks CAF members are expected to perform, with various incentive levels (Bronze, Silver, Gold, Platinum) to motivate members to perform these fitness tests optimally. In addition, a significant amount of study was done regarding the actual tasks that CAF members should perform in the physical domain, and tests were created that reflect these challenges (sandbag drag simulating casualty drag, sandbag stacking simulating moving heavy equipment). As a result, the refresh of the fitness standard has added some credibility to the CAF's emphasis on the physical realm.<sup>19</sup>

The CAF BALANCE strategy adds to the FORCE test refresh by providing a more holistic approach to physical fitness. The deficiencies in the comprehensive nature of this program will be discussed later; however, it is evident that the CAF is tying

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<sup>18</sup> Chief of Defence Staff, *Launch of New CAF Fitness Evaluation* (Ottawa: CAF, [2013]).

<sup>19</sup> Patrick Gagnon, Email Conversation with PSP National HP R&D Manager, March 3, 2022.

physical fitness to nutrition, sleep, and injury prevention (referred to as P4).<sup>20</sup> This program builds off previous initiatives in the CAF, including the 2008 CAF Health and Physical Fitness Strategy, the DT THWS within SSE, and the CAF Surgeon General's 2017 Integration for Better Health Strategy.<sup>21</sup> The BALANCE strategy provides guiding principles of operational focus, the balance of leadership, institutional and individual accountability, centralized intent/decentralized execution, and measurable effects to frame the problem set of how to improve the overall fitness of CAF members.<sup>22</sup> Within these principles, Lines of Effort (LOE) and strategic objectives are codified below:

**LOE 1 – Governance.** Essential to equip commanders with structure, policy, guidance and information and motivation to act as champions of physical performance and to hold both leaders and individuals accountable. The CAF will:

**Strategic Objective 1a** – Provide leadership with the requisite policy framework, monitoring, enforcing and reporting mechanism to ensure chain of command and individual accountability at the strategic, operational and tactical levels; and

**Strategic Objective 1b** – Foster leadership by example through P4 behaviors and reinforce their importance for all personnel.

**LOE 2 – Training, Education and Awareness.** All CAF personnel must understand their responsibility with, and the importance of, the

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<sup>20</sup> CAF - DFIT, *Balance: The Canadian Armed Forces Physical Performance Strategy* (Ottawa, ON: DFIT,[2019]).

<sup>21</sup> *Ibid.*

<sup>22</sup> *Ibid.*

P4 behaviors as well as the skills to adopt and maintain a healthy lifestyle. The CAF will:

**Strategic Objective 2a** – Reinforce the importance of P4 behaviors to all CAF personnel and provide the knowledge and skill to adopt and maintain healthy lifestyle; and

**Strategic Objective 2b** – Provide and promote best practices to CAF personnel and leaders to integrate P4 behaviors into both their work and personal lives.

**LOE 3 – P4 Program and Service Delivery.** Key to achieving the sought-after outcomes are the programs and services provided to personnel. The CAF will:

**Strategic Objective 3a** – Ensure that all P4 related policy, regulations, programs, and recruiting practices remain coherent with the objectives laid out in the strategy;

**Strategic Objective 3b** – Continuously improve programs, education, and services in support of P4 behaviors in the CAF to Regular and Reserve Force personnel; and

**Strategic Objective 3c** – Leverage PSP and Health Services advisors to commanders at all levels to further expand healthy lifestyle programming efforts (fitness, sports, recreation, health promotion, etc.)<sup>23</sup>

Most relevant within the CAF BALANCE strategy are the sought-after outcomes, many of which are quantitative and reflect desired improvements in health. There are 18 sought-after outcomes that the CAF BALANCE strategy seeks to measure. Some of the more germane metrics that can be used to improve CAF members' holistic health are the percentage of CAF members classified as active, the average rating of Heart Rate Variability (HRV) of CAF members, average hours of sleep of CAF members, percentage of CAF members reaching incentive levels on FORCE test, and percentage of CAF members with Waist Circumference within WHO low-risk guidelines. All program metrics are measured through a series of methods, including Health and Lifestyle Surveys, activity and sleep studies, annual FORCE test metrics, and the Canadian Forces

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<sup>23</sup> CAF - DFIT, *Balance: The Canadian Armed Forces Physical Performance Strategy*

Health Information System (CFHIS) data.<sup>24</sup> A complete list of the metrics that the BALANCE strategy seeks to measure are included in Annex B.

The CAF BALANCE strategy takes great strides in codifying the physical performance outputs of the CAF. Additionally, the Canadian Army (CA), Royal Canadian Air Force (RCAF), Royal Canadian Navy (RCN), Canadian Joint Operations Command (CJOC), and CANSOFCOM all have annexes in the BALANCE strategy that lay out their bespoke priorities for their respective formations. Despite this commitment from the Level I formations, there has been little further codification of the BALANCE strategy within their respective elements. The CA took initial steps to develop its holistic health and wellness strategy in 2015, named the Canadian Army Integrated Performance Strategy (CAIPS). This strategy had six main pillars of fitness (physical, emotional, social, spiritual, familial, and intellectual) as well as the stated end state of:

...[producing] an army that is proud, strong and ready to deploy on demanding operations by equally possessing of the resiliency requisite to succeeding and successfully returning to Canada. Performance optimization and health lifestyle choices will permeate everyday life at the unit and at home.<sup>25</sup>

However, with the release of the CAF BALANCE strategy in 2018, this initiative was paused and not re-commenced with any significant effort. The other elements (RCN, RCAF, CJOC) have no known formation-level holistic health and wellness strategy that enhances the BALANCE strategy. Despite any perceived further codification at the Level 1 commands, the CAF BALANCE strategy, when nested with other areas of HPO (mental performance, mental health, cognitive optimization, social environment

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<sup>24</sup> CAF - DFIT, *Balance: The Canadian Armed Forces Physical Performance Strategy*

<sup>25</sup> Hainse, LGen J. M. M, *Mission: Ready - the Canadian Army Integrated Performance Strategy (CAIPS)* (NDHQ Ottawa: CA PD 4500-1, 2015).

improvement, family support), can stand alongside peer nations in providing holistic human performance services to its members.

### **OPF2: Human Performance Emergence in CANSOFCOM**

CANSOFCOM has long recognized a requirement for HPO based on its members' high deployment to dwell ratio (ratio of time away to time home), operational demands, family strain, and general length of time that some of the operators stay in their units on these strenuous cycles. Joint Task Force 2 (JTF2) was founded in 1993 as a domestic counter-terrorism unit and has put significant efforts into optimizing its members' physical, mental, and social resilience. Other CANSOFCOM units were founded much later and therefore lacked the time and resources to build their HPO care provider network as extensively as JTF2. CANSOFCOM recognized this discrepancy and coupled with the recognition of previously mentioned tempo issues and high demands on its members, worked diligently to establish a formation-wide total health and wellness framework. Informal programs have existed within CANSOFCOM since the early 2000s (peer support networks as an example); however, CANSOFCOM HQ founded OPF2 in 2016 to enable a holistic approach to care for CANSOFCOM members and their families.<sup>26</sup> It is important to note that OPF2 is considered a total health and wellness program with an HPO aspect nested within, and the current definition of HPO with OPF2 is still in draft form.

### **OPF2 Model and Operating Concept**

OPF2 is divided into four domains: physical, psychological, spiritual, and family. Each of these domains has a lead practitioner that ensures each CANSOFCOM unit has

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<sup>26</sup> LCol Brian Newlove, *Optimizing Performance of Force and Family (OPF2)* (Ottawa, ON: OPF2,[2021]).

services offered in its respective domain. The Command Surgeon leads the physical health domain, the Command Psychologist leads the psychological domain, the Command Chaplain leads the spiritual domain, and Military Family Services leads the family domain. Each domain is synchronized by the lead for OPF2, named the OPF2 Coordinator, and there is an OPF2 Coordinator second-in-command to provide continuity. OPF2 is structured under the Directorate of Force Management (DFM) in CANSOFCOM and reports to the Director of Force Management for day-to-day operations.

Since its inception, OPF2 has grown its service provider base and codified its model to ensure a holistic approach to SOF member and family care. Their focus is on “promoting resilience, enhancing performance and setting the conditions for optimal rehabilitation across its four core domains: Physical, Psychological, Spiritual & Family.”<sup>27</sup> The program synchronizes existing services within the CAF and supplements programs as required, based on CANSOFCOM members’ requirements.<sup>28</sup>

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<sup>27</sup> *Ibid.*

<sup>28</sup> LCol Shannon King, Interview with CANSOFCOM OPF2 Coordinator, October 29, 2021.

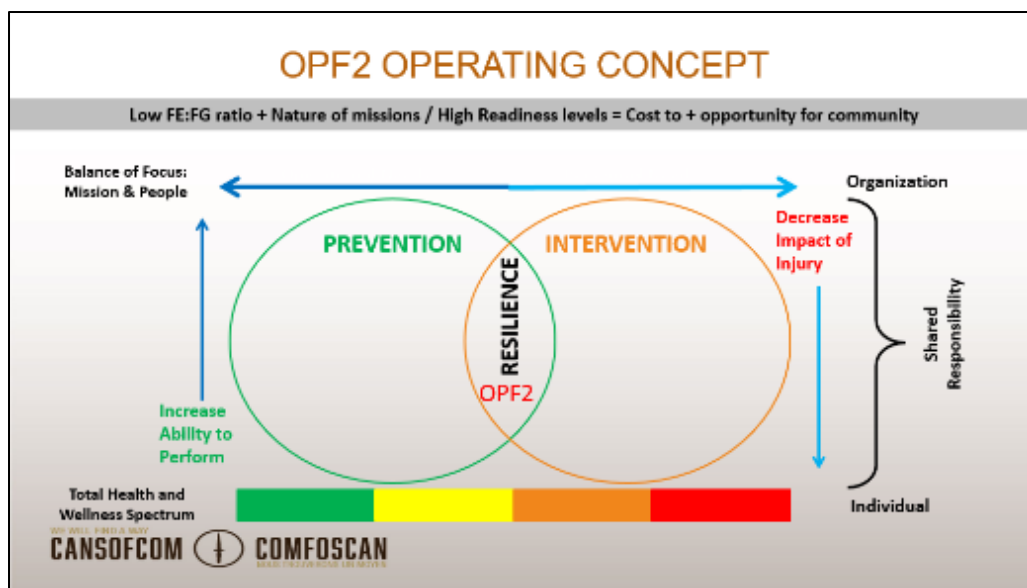


Fig. 3- CANSOFCOM OPF2 Operational Concept.<sup>29</sup>

From the operational concept pictured above, it is clear to see that the intent of OPF2 is not only to keep members from slipping into the ‘orange’ and ‘red’ in holistic health metrics but also to build resilience and increase the buffering capacity for members to deal with physical, mental, spiritual and family stress healthily to ensure operational longevity within the unit and the formation. This model has a broad focus, as it also seeks to optimize members within the ‘green’ spectrum, thereby maximizing their operational outputs at home and, more importantly, while deployed.

### Pillars of OPF2

As mentioned previously in the OPF2 model, there are four domains: Physical, Psychological, Spiritual, and Family. The goals in each of these areas are:

#### Physical Domain

- Reduce the number of physical injuries among CANSOFCOM members;
- Reduce the impact of physical injuries on operational readiness and functional capacity;

<sup>29</sup> Newlove, *Optimizing Performance of Force and Family (OPF2)*



- Provide CANSOF members with resources that maximize their ability to perform;
- Improve performance of the CANSOF member's mind-body weapon system; and
- Reduce attrition and extend the longevity of the CANSOF member's career.

#### **Psychological Domain**

- Generate and maintain a psychologically resilient and peak performing CANSOF community through education, prevention, and early intervention;
- Foster a cultural environment in which psychological fitness is deemed essential for optimal health and performance across the CANSOF member lifecycle;
- Improve recognition among the CANSOF community of the signs of psychological strain and improve proactive coping, including early support seeking; and
- Reduce the impact of psychological injuries on quality of life and sustained operational effectiveness.

#### **Spiritual Domain**

- Ensure that CANSOF members and families are spiritually supported before, during, and after operations;
- Provide CANSOF members and families with programs, education, training deliverables, and other services to maximize their spiritual resilience and their total health and wellness;
- Foster a values-based culture for CANSOF members including spiritual, ethical, and moral education, as well as development and support; and
- Actively promote and provide a Ministry of Presence to CANSOF members and families.

#### **Family Domain**

- Develop and maintain relationships between units and families;
- Inform and support families on the characteristics of the CANSOFCOM lifestyle; and
- Enable families to thrive through programs and services that evolve to meet their needs.<sup>30</sup>

Each of these domains provides oversight and care to CANSOFCOM members in their respective areas of expertise. There are many services relating to each domain that

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<sup>30</sup> *Ibid.*

serve to improve the operational outputs of the personnel of the formation. Services in each domain include:

**Governance and Structure** (OPF2 Coord, OPF2 2IC)

- Logic model for the OPF2 program that identifies Key Performance Indicators (KPI) and objectives for each facet of the program

**Physical Domain** (PSP Strength and Conditioning Specialists, Performance Dietician, Mental Performance Specialist)

- Physical fitness screening protocols, in addition to the FORCE test that measure different modalities of fitness to identify and mitigate individual and collective injury trends;
- Draft supplement policy (currently undergoing review at formation level) that provides direction as to which supplements are approved for purchase and distribution to CANSOFCOM members;
- Preventative physiotherapy in conjunction with Strength and Conditioning Specialists to mitigate the potential for physical injury;
- Draft nutritional policy to allow for high-performance meals and between-meal supplements (BMS) that provide more nutritious foods than CAF food policy currently allows; and
- Special Operations Mental Agility (SOMA) programming that teaches resilience techniques to all CANSOFCOM members. This two-day course focuses on resilience through adversity, performance under pressure, and optimizing outputs through rest and reflection.

**Mental Domain** (Psychologists, Social Workers)

- Leadership psychological testing (HOGAN test) to recognize and improve strengths and mitigate potential derailers;
- Operational psychological services to core FG courseware to screen and assist in the selection of formation members; and
- Clinical psychological services (e.g. mental health counselling).

#### **Spiritual Domain (Chaplains)**

- Chaplain-led training (Character Development Course, Spiritual Resilience Course, Spiritual Fitness Padre Hours, Moral Injury Workshop, Sentinel Training [mental health support for members]);
- Team Teaching (Third-Location Decompression presentation, Pre/Post deployment brief, OPF2 Leadership Course brief); and
- Spiritual Education and Training (Bible Studies, Baptism/Confirmation/Marriage Prep courses)

#### **Family Domain**

- MFS family events (e.g., social events, family advisory groups);
- Family mental health and support services (e.g., family counseling);
- Family support during member deployments, and
- Pre-deployment family briefings.

#### **OPF2 Research and Initiatives**

In conjunction with Defense Research and Development Canada (DRDC) and the Director General Military Personnel Research and Analysis (DGMPRA) authority, OPF2 conducts formal research studies focused on the four domains of OPF2. Given the confidentiality of each study, detailed analysis and findings are limited to CANSOFCOM

internal discussions; however, each domain undertakes specific research to improve its services. In the Psychological Domain, DRDC is studying the dynamics of resilience from the perspective of CANSOFCOM members and the evaluation of acute stress response training. There is a needs assessment of CANSOFCOM families in the family domain. There is a needs assessment concerning PSP programs and services ongoing in the physical domain and a prospective cohort study of physical injuries. Implementing an OPF2 Performance Measurement Framework (PMF) logic model and Key Performance Indicators (KPIs) are being finalized from a governance perspective.<sup>31</sup>

### **CAF/OPF2 Strategy Integration**

OPF2 strives to provide holistic services to all formation members and seeks to nest within the greater CAF wellness strategy. Unfortunately, this proves problematic because HPO frameworks within the CAF are not as developed or codified as the OPF2 scaffolding. Nevertheless, with the newly promulgated Defence Team THWS, OPF2 will continue to be a steward of institutional knowledge in the total health and wellness domain within CANSOFCOM and act as the vanguard for the integration of THWS within the greater CAF. Over time, it is expected that the CAF will further develop an HPO framework that will supplement the DT THWS and integrate with OPF2. The initial problem definition and project conceptualization are led by Pat Gagnon, the PSP National Manager of Human Performance R&D.

As shown in the previous section, the CAF and CANSOFCOM recognize the requirement for further development in CAF members' total health and wellness facets. OPF2 has been the lead turn for the CAF total health and wellness model with initiatives

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<sup>31</sup> *Ibid.*

such as SOMA, nutrition, and supplement policy amendments, leadership emotional intelligence testing, and moral injury workshops that have built physical, mental, family, and family spiritual resilience into CANSOFCOM members. Additionally, the CAF BALANCE strategy has focused on measuring and promoting sleep quality and quantity and HRV to correlate to readiness posture, both serving to increase the performance of CAF members. These initiatives are helpful to remember when examining allied HPO programs in the following sections.

### **Allied Human Performance Initiatives**

*"It's good to learn from your mistakes. It's better to learn from other people's mistakes."*<sup>32</sup>

– Warren Buffet, CEO of Berkshire Hathaway

Allied nations have also recognized the requirement to integrate HPO programs into the operational paradigm. The CAF and CANSOFCOM can iterate from allied programs to ameliorate their HPO paradigm. Below are the frameworks and salient aspects of several HPO initiatives from which the CAF and CANSOFCOM can learn.

### **USSOCOM – Preservation of the Force and Family-Task Force**

*SOF personnel are wired to not accept defeat. We, as an Enterprise, must continue to break down the stigma associated with seeking help; seeking and getting help actually contributes to making us better and stronger...something we all understand and strive for daily in our professional duties--let us apply that carnivore mindset to POTFF.*

-GEN Tony Thomas (Former Commander, USSOCOM)<sup>33</sup>

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<sup>32</sup> "Warren Buffet Quotes," , accessed November 15, 2021, <https://www.michaelhartzell.com/quotes-to-inspire/quotes-to-inspire/bid/65061/warren-buffett-quotes>.

<sup>33</sup> "POTFF - about POTFF," last modified April 20, accessed October 15, 2021, <https://www.socom.mil/POTFF/Pages/About-POTFF.aspx>.

Admiral Eric T. Olsen, former USSOCOM Commander, established The Preservation of the Force and Family Task Force (POTFF-TF) in 2010 after he expressed his concern that the demands of OPERATION ENDURING FREEDOM (OEF), OPERATION IRAQI FREEDOM (OIF), and the Global War on Terrorism were “fraying” the force.<sup>34</sup> The mission of POTFF was, and still is, to build and implement a holistic approach to address the pressure on the USSOCOM forces. Additionally, the POTFF-TF identifies and implements innovative, valuable solutions across the USSOCOM Enterprise to improve the short and long-term well-being of their SOF warriors and their families.<sup>35</sup>

### **Core Messages**

The core messages of POTFF are in response to a clear demand signal from the SOF components, their units, and SOF families. These core messages are the following:

- SOF deployments are unique in scope and requirements;
- POTFF conducts an annual Needs Assessment Survey to identify and address issues and stressors affecting the force and their families;
- POTFF is a priority for the commander and will continue to evolve to meet the needs of the force and their family;
- POTFF efforts are specifically designed to build resilience, improve operational performance, and ensure SOF readiness. We first leverage service-provided and DOD programs; POTFF addresses the gaps and seams;
- POTFF programs and initiatives are based on four key domains; Human Performance, Psychological Performance, Spiritual Performance, and Social Performance;
- POTFF is an integrated, embedded care model to maximize access and minimize stigma; and
- POTFF strives to reduce the stigma associated with seeking help-seeking help is normal and expected.<sup>36</sup>

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<sup>34</sup> Colonel Walter James Wiggins, "Generational Resilience in Support of the Global SOF Network," *Resilience Research and Training in the US and Canadian Armed Forces* (2015), 27; quoted in Donna Miles, "Defense.Gov News Article: SOCOM Strives to Boost Operators' Resilience, Readiness," June 14, 2014, <http://www.defense.gov/news/newsarticle.aspx?id=120289> (accessed 18 November 2014).

<sup>35</sup> "POTFF - about POTFF"

<sup>36</sup> *Ibid.*

POTFF also expands upon its four domains: psychological performance, human performance, social and family performance, and spiritual performance. The pillars and programs of each are:

**Human Performance** - This pillar focuses on holistic and organic physical treatment and training. This pillar includes Sports Medicine, strength and conditioning, and sports psychology for increased and focused effort. Services in this domain include sleep hygiene during deployments, performance nutrition for optimized outputs, tactical athlete programs involving enhanced strength and conditioning, and stress inoculation training.<sup>37</sup>

**Psychological Performance** - This pillar has the objective of cognitive and behavioral improvement, including member support to cope with stress, work on existing strengths, and focus on the readiness of SOF members and families. Services in this domain include mental health buffering for members, cognitive development and enhancement through technical and tactical interventions, and operational psychology screening and selection support.<sup>38</sup>

**Social and Family** - This pillar serves to boost family resilience programs. Social and family programs are adapted for the uniqueness of the SOF family, which has to deal with ‘non-standard deployment cycles, geographic and social/family isolation and high tempo & unpredictability of home and away time.’<sup>39</sup> Services in this domain include unit-level Family Readiness Groups (FRGs) that promote

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<sup>37</sup> Maj Ryan Pearce, "Applying Lessons Learned from USSOCOM Human Performance Program to the USAF Comprehensive Airman Fitness" Air Command and Staff College, 2016), 14.

<sup>38</sup> Pearce, "Applying Lessons Learned from USSOCOM Human Performance Program to the USAF Comprehensive Airman Fitness" 14-15.

<sup>39</sup> "POTFF - about POTFF"

family events and spousal meetings, nutrition, sleep, and resilience training for families, pre-and-post deployment family briefings, and psychological/counseling services for families.<sup>40</sup>

**Spiritual Performance** – This pillar enhances core spiritual beliefs, values, awareness, relationships, and experiences. This pillar is achieved with dedicated and experienced Religious Support Teams (RSTs), specialized training, and integration with a multi-disciplinary team.<sup>41</sup> Services in the domain include specialized pastoral coaching, dedicated deployed Chaplain services, mental health counseling, pre-and-post deployment Chaplain support, and Chaplain services to families.

, Based on the time since the program's inception and the large amount of spending dedicated to the program (POTFF's request for the fiscal year 2022 is \$75.2m USD), POTFF is further codified and developed than any HPO program within CANSOFCOM or the CAF.<sup>42</sup> However, the program has been in existence for more than ten years and should be expected to be more organizationally mature than any fledgling design with the CAF. Nevertheless, the codification of the four pillars can be ported to CAF and CANSOFCOM thinking, and similarities are seen when comparing the pillars of OPF2 and POTFF, as the latter was used as a scaffolding when developing the domains of OPF2.

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<sup>40</sup> Family services offered based on author's experience with POTFF program during employment as USASOC exchange from July 2016 to June 2017.

<sup>41</sup> "POTFF - about POTFF"

<sup>42</sup> Kristy N. Kamarck and Robert Pedrigi, *FY2022 NDAA: Preservation of the Force and Family Program* (Washington: Congressional Research Service,[2021]).



## **SOCAUST – Human Performance Optimization**

In a similar architecture as USSOCOM and CANSOFCOM, Special Operations Command Australia (SOCAUST) Special Operations Command (SOCOMD) has conducted informal HPO for many years. However, similar to other nations, they recognized the need to codify their HPO programming in 2017. They engaged an expert panel to examine rehabilitation and reconditioning programs in SOCOMD, which made two critical recommendations for SOCAUST HPO. The first was to establish a high-performance unit integrated with clinical delivery and a proactive model to support all members of SOAUST. The second was to establish a training model for all leadership in SOCAUST that focuses on knowledge in chronic and acute load management, risks of trauma exposure, mental health prevention, and psychological first aid.<sup>43</sup> Thus, in 2019, SOCAUST issued a directive to create the SOCAUST HPO program housed within the Australian Defense Force School of Special Operations (ADFSSO) as the Centre of Excellence.<sup>44</sup>

### **SOCAUST HPO Principles and Pillars**

The SOCAUST principles of HPO are akin to allied initiatives and have defined HPO as “the application of knowledge, skills, and technology to holistically enhance the physical, psychological and social performance of SOF personnel.”<sup>45</sup> Their ultimate objective is to enable SOF to repeatedly outsmart and outlast a lethal, well-connected, adaptable, and agile enemy in special operations campaigns.<sup>46</sup> As clearly shown in their

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<sup>43</sup> MG Adam Findlay, *SOCOMD Human Performance Optimisation (HPO) Network Strategy: Special Operations Training and Education Centre SOCOMD Human Performance Optimisation (HPO) Network Strategy* (n.p.: Government of Australia,[2019]).

<sup>44</sup> ADFSSO, *Human Performance - Special Forces Command Australia* (Sydney: Australian Defense Force,[2020]).

<sup>45</sup> *Ibid.*

<sup>46</sup> *Ibid.*

definition of HPO, SOCAUST uses similar pillars as other allied programs and is closely aligned with other models previously discussed, containing physical, psychological, social (inclusive of family), and technological realms. These realms are defined as:

**Physical.** This realm seeks to provide an operational advantage by exploiting initiatives, systems, and products to optimize SOF operator strength and conditioning, nutrition, and injury recovery. This domain includes enhanced strength and conditioning service provision, preventative physiotherapy care, performance nutrition program, and increased focus on physical preventative strength training.<sup>47</sup>

**Psychological.** This realm seeks to enable SOCOMD personnel with an operational advantage by optimizing cognitive function, knowledge retention, decision-making, and mental well-being individually and in teams. Services in this domain include emotional intelligence testing and coaching, cognitive performance development interventions, mental resilience training, mental health support and counseling, team performance and leadership training, and peer support network enhancement.<sup>48</sup>

**Social.** This realm seeks to optimize resilience, focusing on family, moral and ethical performance, spirit, and work-life balance. Services in this domain are focused on the Family, Force, and Veterans (FFV) program, which seeks to create social networks between SOCAUST members, their families, and veterans. This

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<sup>47</sup> Findlay, *SOCOMD Human Performance Optimisation (HPO) Network Strategy: Special Operations Training and Education Centre SOCOMD Human Performance Optimisation (HPO) Network Strategy*

<sup>48</sup> *Ibid.*

initiative also connects veterans with transition and employment networking companies for employment after retirement from active service.<sup>49</sup>

**Technological.** This pillar seeks to give SOCOMD personnel operational advantage through the development and integration of technology supplements and enhance SOF performance. This realm is integrated with all other realms and includes technological enhancements such as sleep tracking devices, heart rate monitoring, cognitive enhancement training tools, and nutrition and health marker database integration.<sup>50</sup>

### **SOCAUST HPO Research and Initiatives**

Since program formalization through a SOCAUST initiating directive in 2019, SOCAUST HPO is one of the most nascent HPO programs within the Five Eyes (FVEY) community. However, they focus intensely on research, and the small size and freedom of action allow them to conduct research and develop initiatives on the leading edge of HPO. Their most compelling research includes Kinematic Analysis of Soldier Fatigue, Mechanical Load Monitoring During Training and Operations, Gamification of Selection Process, Supplementation Framework, Heart Rate Variability (HRV) and Sleep Study, and Repetitive Sub-Concussive Trauma (RSCT) Monitoring, Data Collection and Correlative Analysis with Magnetic Resonance Imaging (MRI) Data.<sup>51</sup>

Although SOCAUST HPO is fledgling as an organizational structure, disparate initiatives within their formation have been ongoing for a decade. The institution recognizes a need to increase funding, personnel, and attention toward the ever-growing

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<sup>49</sup> *Ibid.*

<sup>50</sup> ADFSSO, *Human Performance - Special Forces Command Australia*

<sup>51</sup> *Ibid.*

requirement to expand the longevity of SOF Operators through a coherent and well-structured HPO function.

### **Learning Best Practices**

As shown above, numerous other militaries in the allied community have developed HPO programs to varying degrees. The commonalities amongst the programs include the recognition that holistic health and wellness is a force multiplier and operational output enabler, they all have a similar macroscopic delineation of domains and a focus on HPO R&D. Discrepancies include the varying levels of funding and resources between programs and specific focal points in the various domains. CANSOFCOM has learned best practices from these nations' HPO programs and continuously conducts bi-lateral and multi-lateral engagements with their allies, which has aided in the amelioration of OPF2. The CAF is also engaged with allies through an annual International Congress on Soldiers' Physical Performance (ICSPP), which can help evolve and develop an enhanced BALANCE strategy comprising more complete aspects of health and wellness.<sup>52</sup> There is an abundance of lessons learned and best practices from allied militaries, and the CAF need not start from first principles to optimize their HPO programming.

The previous chapter has focused on Canadian, American, and Australian total health and wellness and HPO programs. Each program has unique initiatives that other allied militaries can use to enhance their outputs; however, every program is similar in its codification of different pillars of HPO coalesced through a well-defined structure. With a current overview of the HPO structure and services provided by the CAF, the next

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<sup>52</sup> The author served as a guest speaker on a panel concerning SOF operators' perspectives on HPO during the 2019 ICSPP – SOF component.

section will focus on the current friction points within each domain and describe some of the obstacles that should be overcome to optimize the services provided to CAF members.

## CHAPTER 2 – DEFINING THE PROBLEM WITH HUMANS

*"A soft, easy life is not worth living, if it impairs the fibre of brain and heart and muscle. We must dare to be great; and we must realize that greatness is the fruit of toil and sacrifice and high courage... For us is the life of action, of strenuous performance of duty; let us live in the harness, striving mightily; let us rather run the risk of wearing out than rusting out." <sup>53</sup>*

-Theodore Roosevelt, President of the United States of America, 1901-1909

Across the CAF, the operational level formations spend a lot of time defining and actualizing processes to procure and optimize equipment. Much of this is driven by other Government of Canada (GoC) departments' procurement requirements (Treasury Board [TB] and Public Works and Government Services Canada [PWGSC] as examples). Additionally, CAF/DND internal requirements to prove fiscal propriety and exercise proper purchase Authorities, Responsibilities and Accountabilities (ARAs) add to the process length. While some senior CAF leaders describe this process as overly complex, this system is well codified through years of procuring minor and major capital projects.<sup>54</sup> Conversely, the HPO system is not well codified and structured, let alone being adequately resourced.

CANSOFCOM has been the vanguard of HPO in the CAF and has worked on solidifying best practices, increasing resources, and updating policy frameworks to optimize holistic care to CANSOFCOM members. This chapter will primarily draw on

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<sup>53</sup> "15 Teddy Roosevelt Quotes on Courage, Leadership, and Success," last modified February 14, accessed March 10, 2022, <https://www.businessinsider.com/theodore-roosevelt-quotes-2016-2>.

<sup>54</sup> BGen Chris Ayotte, Briefing from COS Strategy (Army), October 7, 2021. COS Army Strategy admitted that the FD process within the Canadian Army was overly slow and complex, as well as admitting that he could not think of a solution within the current FD constraints.

the CANSOFCOM lessons learned and internal SME inputs to present challenges throughout each bespoke domain, the governance, the funding, and the policy issues that implementing an HPO program can present.

### Issues in the Physical Health Realm

The symbiosis of care providers in the physical realm of HPO programming is one of the most developed HP aspects in the CAF and CANSOFCOM. PSP Strength and Conditioning (S&C) specialists and physiotherapists work very closely at the tactical level to ensure that members are taken care of throughout the entire spectrum from sickness to wellness to fitness.

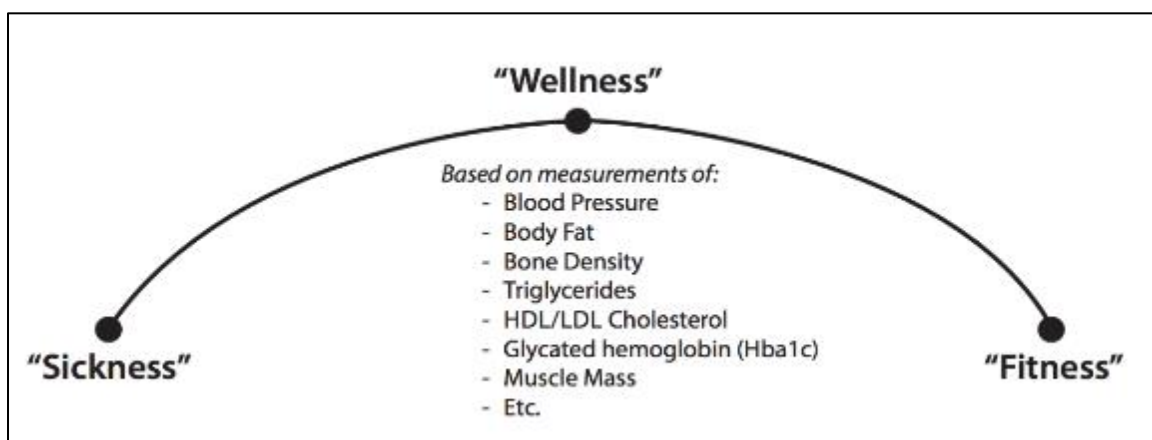


Fig. 4 – Sickness-Wellness-Fitness Continuum<sup>55</sup>

Within CANSOFCOM, referrals between physical health and physical performance are common between PSP S&C specialists and physiotherapists depending on the clients' issues (minor fitness optimization concerns vice major injuries would emphasize different care providers). The main issue in this realm within units at CANSOFCOM is two-fold; a lack of capacity for both physiotherapists and S&C

<sup>55</sup> "What is Fitness? Part 4," last modified April 4, accessed November 23, 2021, <https://crossfittrain97333.com/blog-1/2019/4/3/what-is-fitness-part-4>.

specialists and the fact that physiotherapists are a combination of military members and civilians, and all S&C specialists are PSP. The capacity issue leads to delayed care for some members and less specialized/individual programming. Relating to the large number of civilian and PSP care providers, the main issues with this are that the ability to increase the establishment for civilians and PSP is more limited than military establishment increases, and civilian employment overseas is much more restricted.<sup>56</sup> In addition, while PSP deploys to operations occasionally, there is much less flexibility to deploy these members on short notice than with a military member, primarily based on liability and insurance restraints.<sup>57</sup> This issue becomes more apparent when deployed members need acute physiotherapist care, and only military physiotherapists can fill this need.

Another clear issue within the physical realm relates to overall health and fitness tracking and the human capacity to manage this data. CANSOFCOM implemented a data tracking system in early 2021 to manage certain aspects of HPO programming, which is likely to continue, but the wider CAF lacks a codified process to monitor metrics of a clients' general fitness (other than the FORCE test).<sup>58</sup> Many data points should define physical fitness, including blood markers and sleep quality.<sup>59</sup> Blood markers in the CAF system are measured only every two or five years, depending on age. Additionally, the specific blood markers measured are insufficient to test for all but the most apparent health issues. No hormone panels are conducted as a preventative measure, no thyroid

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<sup>56</sup> LGen Mike Rouleau, Interview with VCDS, June 26, 2021.

<sup>57</sup> Major Jodie Cavicchi, Interview with OPF2 2IC, January 19, 2021.

<sup>58</sup> *Ibid.*

<sup>59</sup> CFHIS maintains quantitative data on individuals' health but is vastly sub-optimized to track metrics and requires thorough data mining by health professionals to compare data points.



function is tested unless pathology is suspected, and many markers that signal chronic inflammation are not tested unless signs or symptoms of deficiency are present. The are glimmers of higher-level physical fitness thinking in the BALANCE strategy, but this thinking still falls short of statistical utility. For example, based on the BALANCE strategy, the CAF desires to conduct a sleep study with a small subset of CAF members to measure sleep quality, but widely distributed systems or tools to monitor and improve sleep quality are still lacking.<sup>60</sup> Sleep hygiene is one of the most critical facets of holistic health and needs more focus. Renowned neuroscientist and sleep expert Dr. Matt Walker states in his TED talk that just one night of sleep deprivation can shut off the brain's ability to encode new learning, thus affecting many facets of memory and job performance.<sup>61</sup> Sleep hygiene can be achieved through several low-tech and low-cost solutions that are easily implementable across many clients.<sup>62</sup> There are also numerous ways to measure sleep quality with biofeedback devices, which also measure other indicators of physical health (e.g. heart rate and HRV). These devices are low-cost and readily available to buy commercially.

Compounding on the above issues are concerns regarding basic fueling for the bodies and minds of CAF members. The CAF food procurement and feeding systems fail to provide robust options that optimize members' longevity and performance. CAF cooks must follow the Strat J4 Food policy that dictates the number of carbs, proteins, and fats that have to be prepared for every meal, without giving granular guidance on what

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<sup>60</sup> CAF - DFIT, *Balance: The Canadian Armed Forces Physical Performance Strategy*. CANSOFCOM R&D is currently conducting a sleep study, but no other entity outside CANSOFCOM is known to be conducting a sleep study on its members.

<sup>61</sup> *Why is it Essential to make Time for Sleep?* Podcast, directed by Matt Walker (Washington: NPR, 2021)

<sup>62</sup> CANSOFCOM HP R&D has produced simple sleep assist packages for deployed CANSOFCOM members, and include: sleep mask, ear plugs, herbal sleep assist tea, and meditation practices.

specific foods are optimal for health, wellness, and performance. CANSOFCOM is advocating for a change to this policy to allow for more food purchasing flexibility (to be discussed in further detail in Chapter 3), although no policy change has been codified for CANSOFCOM alone for the CAF writ large.<sup>63</sup> Additionally, the culture of sub-optimal food choices persists (french fries and hamburgers as constant options in CAF mess facilities), and so engrained in mess culture that removing these items can create a backlash from the members.<sup>64</sup> The choices provided at messes across the CAF need a holistic paradigm shift from fleeting pleasure foods to higher-protein, low-inflammation, and long-duration energy options that forge a healthier and fitter fighting force.

The second layer of the nutrition issue is the question of supplementation. All approvals to purchase and distribute supplements are controlled within the medical chain. However, many doctors cannot review or stay updated on clinical supplementation studies, literature, and data that justify the use of certain supplements for optimizing health.<sup>65</sup> Due to this paradigm, many supplements that could be authorized for use and have been proven safe and effective over the past 20 years of research (e.g, fish oil and creatine) are still only being spoken about on the periphery of CAF nutritional supplementation. The focus of the medical community on treatment vice prevention also leads to a deficiency in the supplementation realm; the lack of a supplement policy. A codified supplement policy would better enable and steer HPO care providers to purchase and distribute supplements to CAF members and serve to increase longevity and wellness pan-CAF. This policy should not be a conversation about illegal drugs or unproven

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<sup>63</sup> LCol Godin, CANSOFCOM J4 Food and Strat J4 Food Email Conversation, November 8, 2021.

<sup>64</sup> Ashley Armstrong, Interview with CANSOFCOM Performance Dietician, November 12, 2021.

<sup>65</sup> Dr Janet Conrad, Interview with Dr. Janet Conrad, October 27, 2021.

potions. Instead, CAF supplementation policy conversations should concern the minimum effective dose of clinically proven supplementation that could significantly improve members' lives, longevities, and operational outputs. A lack of CAF supplementation policy is an evident deficiency in the nutritional health paradigm and must be rectified.

### **Issues in the Mental Health Realm**

Understanding that conflict can profoundly affect a military member's mental health is not a new paradigm. The term 'Shell Shock' was coined in 1914 in the First World War, with soldiers showing signs of mental health stresses that might be better defined today as post-traumatic stress disorder (PTSD).<sup>66</sup> This prevalence of mental injury was even more pronounced during and after the Afghanistan campaign in Kandahar from 2005-2011, where a step function increase of PTSD and operational stress injuries (OSI) occurred within the CAF. According to Veteran Affairs Canada (VAC), 23% of the 40,026 CAF members deployed to Afghanistan currently receive a pension related to a mental health condition.<sup>67</sup> These data do not even consider non-VAC-recognized mental conditions resulting from the conflict. The CAF was slow to react to this crisis but eventually recognized the issue and stood up Joint Personnel Support Units (JPSUs – initially scoped as a CAF member rehabilitation project that became a formation) around the country in 2008 in order to provide mental and physical support to CAF members affected from the traumas of conflict.<sup>68</sup> Despite this support system and

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<sup>66</sup> Dr Edgar Jones, "Shell Shocked," *American Psychological Association* 43, no. 6 (June, 2012), 18. <https://www.apa.org/monitor/2012/06/shell-shocked>.

<sup>67</sup> "Afghanistan Veterans," last modified October 13, accessed November 15, 2021, <https://www.veterans.gc.ca/eng/about-vac/news-media/facts-figures/9-0>.

<sup>68</sup> "JPSU Restructures Under a New Commanding Officer," last modified March 20, accessed November 3, 2021, <https://www.cfmws.com/en/AboutUs/Library/MediaCentre/Archive/Pages/JPSU->

over 13 years of continued mental injuries of CAF members from deployed operations, the system remains understaffed and reactive (vice proactive) to mental health injuries.<sup>69</sup>

Currently, there is recognition of the requirement to increase mental resilience within the CAF, but capacity is still limited. The CAF currently has several programs to increase mental resilience: Mental Fitness and Suicide Prevention, Managing Angry Moments, Stress: Take Charge, and the Road to Mental Readiness (R2MR). The Mental Fitness and Suicide awareness course "...prepares CAF supervisors to be aware of suicide and to practice suicide intervention."<sup>70</sup> The Managing Angry Moments course is "...an interactive, educational tool to help you identify situations in your daily life that cause anger. You will also learn how to apply new skills to address these situations safely."<sup>71</sup> The Stress: Take Charge course "is a self-directed course designed to teach participants how to manage stress through self-awareness, changing behaviors and skill-building."<sup>72</sup> According to the CFMWS website, R2MR is a course on resilience techniques given on core courseware and pre-deployment training and includes an eight-hour brief to CAF members, a three-hour brief to family members prior to deployment, and several briefs post-deployment. While all of these courses address specific aspects of

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CoC.aspx#:~:text=Quick%20Facts&text=The%20JPSU%20structure%20was%20established,injuries%20tr  
eated%20has%20changed%20considerably.

<sup>69</sup> Megan Potter, Interview with CANSOFCOM Mental Performance R&D Specialist, 10 March, 2022. As an example of the wait times for mental health care, there is a 150-person waitlist for mental health services at CFB Petawawa, and wait times are generally 3-4 months for initial mental health assessments.

<sup>70</sup> "Mental Fitness and Suicide Awareness," last modified October 1, accessed November 22, 2021, <https://www.canada.ca/en/departement-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/mental-fitness.html>Promotion/Core-Programs/Mental-Fitness-and-Suicide-Awareness.aspx.

<sup>71</sup> "Anger Management," last modified October 1, accessed November 23, 2021, <https://www.canada.ca/en/departement-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/anger.html>.

<sup>72</sup> "Managing Stress in the Military," last modified October 1, accessed November 23, 2021, <https://www.canada.ca/en/departement-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/stress.html>.

the mental ‘sickness-fitness-wellness’ paradigm, participation in all but R2MR is voluntary and self-initiated, and several of the courses are self-directed and virtual. This is sub-optimal for CAF members' current mental health crisis and should be improved.

Additionally, Mental Performance Consultants (MPC), a position created within PSP that focuses on techniques to increase CAF members’ mental resilience (aiming to keep members in the ‘wellness-fitness’ space vice the ‘sickness-wellness’ space) are scarce, with only three positions created in CANSOFCOM (one for clinical work and two for R&D) and one position created within the greater CAF.<sup>73</sup> This function is one of the most accessible avenues to adopt a proactive approach to mental performance. Even within CANSOFCOM, the addition of pre-deployment mental resilience training was only implemented in 2019, is not mandatory, and is only conducted based on the desires of the deploying Task Force Commander (TFC). Despite the voluntary nature of the training, the anecdotal results and feedback have been highly encouraging to continue the program indefinitely for all deployments. Outside of this small initiative, the CAF writ large remains under-resourced in both the proactive and reactive mental health and mental performance space. Given the increase of stress and mental health issues within the CAF from COVID-19, the Taliban takeover of Afghanistan in the summer of 2021, and the inhumanity and suffering during the February 2022 Russian invasion of Ukraine, this dearth of mental health care providers may prove to have outsized adverse effects on CAF members’ mental health over the near-and-mid-term.

As the nascent CAF mental performance program grows, an issue has arisen regarding the roles, missions, and tasks delineation between mental health specialists

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<sup>73</sup> Jamie Collins, Interview with CANSOFCOM Mental Performance Specialist, October 21, 2021.

(psychologists and social workers) and MPC. Specifically, it relates to a different perspective on where tasks should be delineated. Many psychologists assess that their span of responsibility should be inclusive of the complete ‘sickness-wellness-fitness’ curve. They can focus on performance issues (e.g., executive coaching) and mental health services for injured members (e.g., psychology counseling). MPC is aware that they should focus solely on the performance spectrum (e.g., one-on-one coaching, team resilience training) and not delve into the mental health space (between sickness and well-being). Because a formal college does not govern MPC, they are not authorized to provide mental health clinical services. Both sides recognize a grey area in delineating where wellness occurs on the spectrum of care and the difference between a ‘well’ member and a ‘sick’ member. However, there is general disagreement about which provider should be the entry point for a member who wants initial mental performance coaching. Some members of the psychological realm are concerned that an MPC may misdiagnose a mental health issue as a performance issue and create a credibility risk for the institution and their professional college. This paradigm leads to an increased desire for mental health specialists to delve into the mental performance realm, thereby further decreasing their capacity to treat mental health issues. Fortuitously, the issues in the delineation of roles, missions, and tasks are being solved. As of February 2022, a PSP Mental Performance Program National Framework has been published that provides scaffolding for the scope of practice within which the MPCs and mental health specialists should operate. The below figure graphically represents the delineation of tasks between MPCs and mental health professionals.

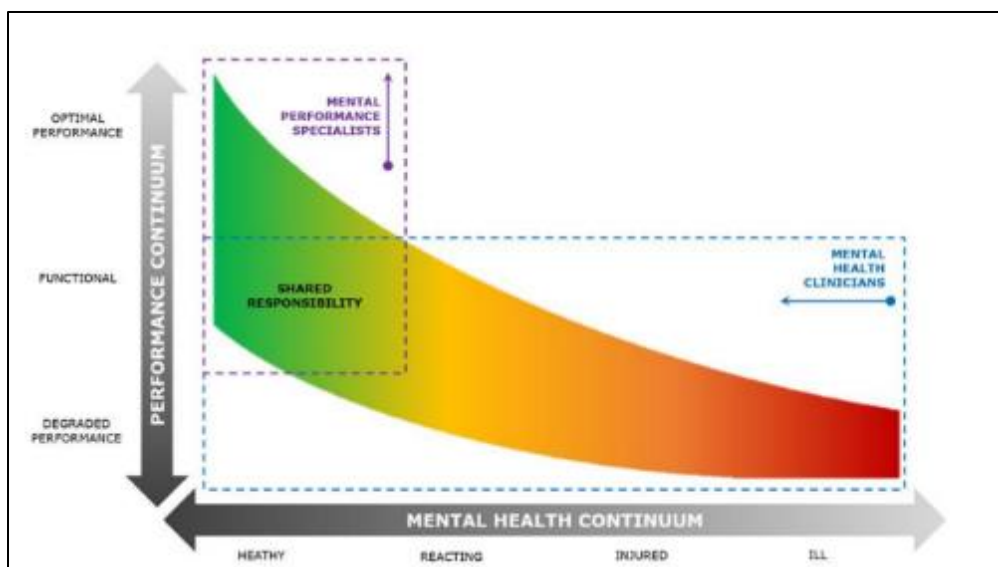


Fig. 5 – Range of Mental Performance Potential Along the Mental Health Continuum - Roles and Shared Responsibilities of Mental Healthcare Providers vs. Mental Performance Consultants<sup>74</sup>

This framework is the first step in synchronizing mental health and mental performance care provider responsibilities. As of the writing of this paper, the program has yet to be tested in practical application, therefore its effectiveness is yet to be determined. Issues remain in the application of the framework, given the dearth of MPCs within the CAF and potential conflicts relating to the definition of what constitutes a mental health issue and what constitutes a mental performance issue.

### Issues in the Family/Social/Spiritual Health Realm

In Dr. Engel's biopsychosocial model, all three aspects of the paradigm are equally weighted. However, the family and social domains are often overlooked and underemphasized in the CAF and even in CANSOFCOM. Spouses and children of various unit members across the CAF coalesce into informal 'spouses' clubs,' but the formalization of family groups is still in the nascent stage and inconsistent at the unit

<sup>74</sup> Francois Theriault, *PSP Mental Performance Program National Framework* (Ottawa: Personnel Support Programs,[2022]).

level. Specific units in CANSOFCOM have formed ‘Family Advisory Groups’, a council comprised of a small group of CANSOFCOM unit members’ families that advise MFS on programming and services to offer to the larger CANSOFCOM family group. However, this structure is based on the desires of each CANSOFCOM unit and is not codified more broadly. USSOCOM’s FRGs (Family Readiness Groups), which bring families together for work and leisure events, at least monthly, would be an example that all units in the CAF could strive to emulate. Additionally, when juxtaposed against the US Military, CAF culture contributes to a more muted family response to pre-deployment briefs, posting-in briefs, and other social events. Canadian culture does not seem to emphasize their military and associated pride as much as the US Military.<sup>75</sup>

In the current paradigm, CAF families are often beholden to the information passed onto them from their CAF spouses, and Military Family Services (MFS) are short-staffed. Specifically, with CANSOFCOM, one MFS employee is charged with responsibilities that would typically be given to several MFS employees within the CAF.<sup>76</sup> These factors result in a sub-optimal spousal support network when members are deployed and contribute to family frustration and burnout during deployments. In CANSOFCOM, when the previously mentioned factors are coupled with a high dwell ratio across each unit of the formation, many family coherence fractures appear, leading to divorces, mental health issues, and OSI of members or their families.<sup>77</sup> DGMPRA has conducted several studies in this domain, the most pertinent of which is the

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<sup>75</sup> Based on author’s experience on exchange with a USSOF unit, 2016-2017.

<sup>76</sup> Melanie Ferguson, Interview with Hill Family Services (HFS) Director, 11 April, 2022.

<sup>77</sup> Maj Chris McPhee, Interview with DHTC Base Services Comd, November 10, 2021. Dwell ratio is defined as time away:time home. In certain CANSOFCOM units, the dwell ratio for the majority of its personnel is as high as 1:2 and some personnel as high as 1:1.



CANSOFCOM Spouses' Needs Assessment Survey, conducted in 2019. The results are congruent with the previously mentioned issues. Of 159 spouses interviewed, 34% of respondents stated that communication from their respective MFS/Units was lacking, and 26% stated accessibility to services was an issue.<sup>78</sup> The study also presents recommendations to improve the family realm and is incorporated into the recommendations presented in Chapter 3. An infographic of the complete results of the spousal survey is included in Annex C. CANSOFCOM, despite an increased density in family and social support mechanisms, still suffers from some of the same family realm issues that are evident in the rest of the CAF.<sup>79</sup>

Spiritually, the same paradigm apparent in the family realms applies within the chaplain branch. Members are generally unaware of the complete spectrum of services provided by the chaplain branch, and not all chaplains are as well-integrated into the HPO spectrum as other care providers. CANSOFCOM appears to be the outlier in this realm, as chaplains are heavily involved in OPF2 steering committees and meetings and well-integrated into pre-deployment member and family briefs. Additionally, chaplains have been involved in deployment re-integration and episodic technical assistance visits (TAVs) with deployed Special Operations Task Forces (SOTFs); a paradigm that was non-existent until several years ago. While specific sub-populations in CANSOFCOM still do not regularly engage with the chaplain branch (many operators and assaulters seek the comfort and familiarity of the peer support network to find catharsis and vice chaplains), CANSOFCOM has taken fundamental steps in the integration of chaplains

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<sup>78</sup> Dr Eva Guerin and Dr Isabelle Richer, *CANSOFCOM Spouses' Needs Assessment Survey* (Ottawa: Department of National Defence,[2020]).

<sup>79</sup> Ferguson, Interview with Hill Family Services (HFS) Director

into the complete health and wellness network. Nevertheless, more can be done in the area, and recommendations for improving the effectiveness of the spiritual domain will be discussed in Chapter 3.

### **Looks Good on Paper: HPO Structure and Governance Issues**

Without a codified structure, governance or framing documents, and delineation of relationships, any institutional program will struggle to actualize its outputs fully. HPO is no different. With disparate CAF programs focusing on different pillars of health, it remains challenging to provide holistic care to CAF members. Certain care providers may not even be aware of a member's issues in another domain, and without an integrated structure, CAF members' issues may be treated separately instead of holistically. A vertically integrated (proper hierarchy) and horizontally integrated structure (HCP cross-domain case management) will lead to an economy of effort and resources for CAF members' care. Once such a structure is designed, the cornerstone will be how the care is integrated.

The most critical issue within the HPO realm is solving the issue of who leads the HPO team. Because HPO requires multi-disciplinary experts from various domains (many of which are codified professionals belonging to colleges or associations), it is complicated to find the right type of leader/integrator that will coalesce the disparate experts, optimize outputs, and ensure the smooth functioning of the HPO program while keeping the client (in this case, the CAF member) in mind. Several different concepts in HPO leadership have been implemented in various organizations across the FVEY allies' network, with well-defined strengths and weaknesses. For example, the Senior Physician leads the HPO team with requisite knowledge and oversight over members' medical files

in some structures. However, they may experience relating to the client in certain situations and hold a more biased negative view of clinically unproven therapies. Additionally, physicians are highly time-pressed and may not have the bandwidth to oversee the HPO program adequately. Conversely, some programs are led by operators/core end-users (infantry soldier as an example in an infantry battalion), which can provide the clients tighter conduit to access the programs, as well as the potential to devote more time to HPO management (if employed full time as HPO program lead). However, an operator HPO lead may lack understanding and hold potential bias toward unproven therapies that may prove detrimental to the HPO program. Regardless of the pre-requisites for the HPO manager or integrator, this position is essential for CAF HPO programming proper functioning and case management. One of CANSOFCOM's HP Delivery Managers has noted that a lack of an HPO coordination function leads to sub-optimized care. Lacking an HPO lead, members' issues are managed separately by different domains, and issues that permeate several domains are not treated in a symbiotic manner.<sup>80</sup>

### **A Lot of Money for PT: Financial and Personnel Restraints in the HPO Realm**

Unlike historical hardware requirements in the CAF and CANSOFCOM, HPO programs have not been privileged with the requisite level of funding. In CANSOFCOM, baseline funding for the OPF2 program until 2021, has been internally generated, meaning that other programs, force development, sustainment requirements, and operational activities have been scaled back to provide monies for this imitative.<sup>81</sup> In

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<sup>80</sup> Elliot Richardson, Interview with CANSOFCOM Human Performance Delivery Manager, November 19, 2021.

<sup>81</sup> King, Interview with CANSOFCOM OPF2 Coordinator

2021, a modest amount of funding was granted from the CAF to CANSOFCOM to pay for OPF2 but falls below the funding required to optimize the program truly. Previously discussed shortfalls in personnel, coupled with a lack of monies (as well as policy) for initiatives such as blood marker testing/correlative analysis and CANSOFCOM units competing for scarce resources, all result in sub-optimized programs. In the CAF currently, a considerable sum of funding had been allocated to develop a CAF tactical HPO program, but when the Treasury Board (TB) submission was made for the CAF Health and Wellness in preparation for the 2022 federal budget, only a small sum of this originally desired funding was approved. Therefore, a more holistic HPO program for the CAF remains a concept, and the PSP National HP R&D Manager continues to work with CAF leadership to drive this concept forward and inject more positions into key roles to improve CAF HPO.<sup>82</sup> Unfortunately, a gap still exists between the desired HPO resources and resilience improvements for CAF members and the stark reality that the CAF soldiers, sailors, and aviators are still metabolically and cognitively degraded after years of service to their country.

On the staffing side of HPO, many care providers are civilians or CFMWS NPF employees (e.g., MPC, operational and clinical psychologists). Therefore, more cumbersome hiring processes and limitations are always at the forefront. Subsequently, the potential for growth of HPO capacity in some realms remains limited. Additionally, money to pay for these positions becomes an issue, as the CAF is overborne on civilians, and money is already being drawn away from Vote 1 (CAF operations and maintenance) monies to pay for already filled civilian positions.<sup>83</sup> Finally, realizing that there are many

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<sup>82</sup> Gagnon, Email Conversation with PSP National HP R&D Manager

<sup>83</sup> Rouleau, Interview with VCDS

other competing priorities in the CAF for civilian positions, it remains difficult to significantly increase HPO capability and capacity on a large scale across the CAF and even on a smaller scale within CANSOFCOM.

### **Smoothing The Friction Points**

The previous chapter focused on lessons learned from the implementation of CANSOFCOM's OPF2 program and the issues that remain in the formation and the greater CAF regarding domain-specific capability and capacity, governance and funding. For example, CAF members' lack of a flexible nutrition and supplement policy, sub-optimized health marker testing, inadequate mental health practitioners, and limited family and spiritual involvement in daily garrison and operational aspects contribute to HPO programming where friction points still resonate. Additionally, the CAF has extremely limited growth in the civilian/PSP realm (HPO manning comprises a majority of CFMWS NPF and civilian positions), and monies are constrained at the strategic level. However, these issues can be mitigated with more funding, structure, resource, and policy focus. The next Chapter will provide recommendations to mitigate these frictions in each domain and solve the governance and policy questions to frame and enable an HPO program providing optimized care to all CAF members.

### **CHAPTER 3 – HUMANS ARE THE HARDWARE**

Throughout the discourse on HPO friction points in the CAF and CANSOFCOM, many issues have been identified in the financial, staffing, and governance space throughout the various domains of holistic health. This chapter will focus on the recommendations to solve issues in each domain and frame policy and governance to align the domains. If OPF2 should serve as the vanguard for HPO in the CAF, best practices can be ported to rectify issues and provide a scaffolding for optimizing HPO within the CAF while also improving its programming and delivery for CANSOFCOM members.

#### **What We Can Do Now: True HPO Excellence**

Based on earlier discussion points presented in this paper, dissection of each of the aforementioned health domains proves helpful in framing the recommendations for optimizing HPO within the CAF and CANSOFCOM. The following recommendations are only a starting state to improve the programming and delivery of HP services across CANSOFCOM and, more broadly, the CAF. Generally, CAF HPO programs lag those of CANSOFCOM due to several factors. The much greater numbers and geographic dispersion of CAF members vis-a-vis CANSOFCOM members make it harder to deliver HPO programming across the institution. Additionally, the relative prioritization of HPO programs in other formations against CANSOFCOM's higher priority for HPO and the relatively high number of resources per capita available to CANSOFCOM versus the greater CAF contribute to OPF2's advantages in program development and delivery. Despite these challenges, many of the following recommendations can be implemented into the greater CAF with ameliorations to structure, policy and program delivery.

## **HPO Structure and Governance Optimization**

As mentioned previously, JTF2 was the first SOF Unit in Canada, which stood up in 1993. CANSOFCOM HQ and subsequent CANSOFCOM units have been built around this SOF counter-terrorism nexus, and therefore structures and governance have been retrofitted in a somewhat disjointed manner. The same is true for CANSOFCOM HPO programs. S&C coaches, physiotherapists, and mental health professionals have existed at JTF2 long before the creation of OPF2. OPF2 structure and governance at the HQ level has been implemented well after implementing tactical-level service care providers. This fact is also true for other CANSOFCOM units, although no other unit in CANSOFCOM has the level of HP resources that JTF2 enjoys. While the OPF2 structure and governance model was much needed, the issues arising from a retrofit of the coordination function (especially one without any formal command authority over its constituent parts nor the units it enables) take a considerable amount of time to untangle. OPF2 is a critical program for CANSOFCOM and is currently managed under DFM. Given the importance of the program, consideration should be given to placing OPF2 under the direct command of the Deputy Commander of CANSOFCOM and giving the OPF Coordinator position more formal command relationships with the domain leads. A formal command relationship (such as Operational Control or Tactical Command) would focus the care providers under the direction of the OPF2 Coordinator and synchronize efforts to achieve optimal results for CANSOFCOM members.

Given the CAF's focus on reconstitution, implementing a CAF-level HPO program, beyond the BALANCE strategy, would have clear benefits for all soldiers, sailors, and aviators, mitigate mental and physical sickness risk and contribute toward CAF

member longevity and operational excellence. The CAF can take best practices from the organizational growth that OPF2 and the HP programs at CANSOFCOM units have undergone. The CAF should establish a clear HPO military structure and chain of command for every formation and unit level. Multiple lines of reporting and non-congruent unit OPIs have contributed to the OPF2's issues in various units (at some units, OPF2 leads are deputy commanding officers; at others, some are chief instructors). This issue can easily be rectified at the CAF level by appointing the requisite rank at the Strategic Joint Staff (SJS) to oversee the CAF's HPO program. This position would ideally be codified as an HPO Integrator (HPO-I) and should be an O-6 (Colonel/Captain[N]) or O-7 (Brigadier General/Commodore). The HPO Program Director at the SJS should not be affiliated with any sub-components of the HPO service providers (e.g. Surgeon General, PSP, DFIT) to mitigate biases towards favoring one facet of HPO over another. Subordinate formations should mirror the HPO structure at the strategic level and appoint an HPO-I at every subsequent level down to the unit:

- Level 1 - Army/Navy/Air Force/CJOC/CANSOFCOM/CMP - O-6  
(Colonel/Commodore)
- Level 2 - Division/Fleet - O-5 (Lieutenant Colonel/Commander)
- Level 3 - Brigade/Wing/Ship - O-4 (Major/Lieutenant Commander)
- Level 4 - Unit - O-3 (Capt/Lt[N])

Once the basic structure of the chain of command has been codified, requisite HPO components and service providers must be built around these HPO-I and mirror the desired structure at the care provision (unit) level. For example, using the



biopsychosocial model and OPF2 as a template, HPO teams would include the following positions at a minimum (part-time or full-time dedication to Unit/Formation):

- Physical Performance Sub-Domain Lead (PSP Employee/Civilian with extensive S&C background)
- Physical Health Sub-Domain Lead (CAF Medical Officer/Physiotherapist/Physician's Associate)
- Mental Health Sub-Domain Lead (CAF Social Worker/Civilian operational or sports psychologist)
- Mental Performance Sub-Domain Lead (Civilian with an extensive background in mental performance or sports psychology; not required to be a qualified psychologist)
- Spiritual Domain Lead (Military Chaplain)
- Family/Social Domain Lead (MFS civilian)

This structure will require a significant increase in manning for these HPO teams, especially in the civilian realm. However, due to the projected limited growth in civilians in the CAF, military members or PSP should primarily seek to fill these positions. As an alternate course of action, contracted services could be used with a continued desire to hire civilian care providers without realistically expecting to achieve substantial civilian growth. Regardless of the type of personnel (military, contractor, PSP, civilian) filling care provider roles, with the proper human network integrator in the HPO-I position, HPO service providers will work symbiotically and track cross-domain cases for optimal performance regarding member care. An article in the *Journal of Special Operations Medicine* titled *Optimizing Warfighter Lethality Through Human Performance Education*

re-enforces this position, arguing that HPO-I is essential in the delivery of programming since many different care providers must be brought together and work in sync to deliver holistic care.<sup>84</sup>

Further complicating this governance paradigm is the lack of formal command relationships between care providers and HPO-I. Despite a dearth of formality, specific CANSOFCOM units have had success with informal command relationships, an assigned HPO-I, and integrated workspaces for the entire HPO team to foment more regular discussion and synchronize care.<sup>85</sup> Due to the stark potential of professional and task conflict stemming from lack of focus, a codified mission statement, vision, and common purpose must be ever-present attributes of the entire HPO team. Otherwise, significant risks exist in providing complete care to CAF members. Despite these risks, with the right framing, terms of reference, physical workspace, battle rhythm, and communication methodology, HPO organizations at every level can become emergent and provide outsized benefits to the soldiers, sailors, and aviators whom they serve.

### **Physical Health and Performance Realm Optimization**

As human performance is most colloquially associated with the physical realm of HPO, the CAF and CANSOFCOM have pursued initiatives in this domain over a more extended timeframe than other domains. Therefore, this domain is the most developed and resourced at the unit level (e.g., physiotherapists, strength coaches) within the institution, yet the operational level still lacks positions to synchronize effects (e.g., No CANSOFCOM HQ Physiotherapy manager position exists). Physical fitness is also

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<sup>84</sup> Patricia A. Deuster, Travis Lunasco and Lauren A. Messina, "Optimizing Warfighter Lethality through Human Performance Education." *Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals* 19, no. 2 (2019), 101, 102.

<sup>85</sup> Captain Isabel Courchesne, Interview with CANSOFCOM HPO-I, November 8, 2021.

engrained in the culture of the CAF, albeit only enough to pass the requirements through Universality of Service, quantified by the FORCE test. Despite this advanced development of physical fitness, when juxtaposed against other domains of human performance, there are still myriad sub-optimized facets that can be rectified within the structure and delivery of physical health. Examples worthy of consideration include more comprehensive physical health testing, improving nutrition in CAF messes, increasing the hiring of military physiotherapists, codifying a pan-CAF supplement policy, and implementing pan-CAF biofeedback devices. These improvements will all have positive effects on physical health. Each recommendation will be explored in further detail to provide tangible steps to realization.

Annual fitness testing in the CAF has improved dramatically since the introduction of the FORCE test in 2013 and may be the apogee of improvement in the CAF's desire to correlate fitness testing standards to operational tasks. While an employment-specific fitness test may be more realistic and enable more personnel to join trades other than combat arms, the FORCE test is a step-function improvement over the antiquated CAF fitness test. The requirement for trade-specific fitness tests will not be discussed in this paper, other than the fact that CANSOFCOM has had remarkable success in the correlation of job-specific test protocols (Assaulter, SF Op and CBRN Op all have job-specific tests [JST]) and fitness levels required to perform job functions. These JSTs were designed by CANSOFCOM PSP HP R&D, with the core tasks of individual trades primarily in focus.

To create quick wins for the health and wellness of CAF members, eating habit influences and CAF messes must also be examined. CAF messes perform an essential

function on all CAF bases to feed its members (especially those on core FG courses), and through the amelioration of these facilities, CAF members' overall health and wellness will increase significantly. While healthier options are present in a mess at most times, there always exists the ability to revert to poor health choices, including pizza, fried foods, and soda.<sup>86</sup> These foods should not be in the culture of an advanced military organization, and access to these items must be limited. These types of food offer little nutritional value, increase health issues with erratic blood glucose responses, and provide marginal sustainable energy. Increasing the availability of healthier nutrition choices (fibrous carbohydrates, increased fruit and vegetable choices, and a broader selection of high protein meats) and ridding the messes of poor nutrition choices will provide a high benefit to cost ratio for the overall health of CAF members. In his book *Nudge: The Final Edition*, Richard Thaler speaks about 'sludge' techniques, simple interventions that make people adverse to specific behaviors. By making unhealthy food choices harder to find at CAF messes or putting them after the nutritious choices, the sludge effect can force healthier eating habits. Achieving this aim also requires re-writing the CAF food manual at the Strat J4 Foods level. CANSOFOM has undertaken the initiative to create a more flexible food policy within the formation, primarily through the CANSOFCOM SOUTH Performance Dietician. According to her, CANSOFCOM is rewriting the policy along the following principles:

...design performance menus that provide nutrition that supports overall health and optimizes operational readiness and functional capacity. Areas of focus will include, but are not limited to:

- Offering a variety of predominantly whole foods from high quality sources to meet caloric demands, prioritizing foods made from scratch over-packaged and pre-prepared foods;

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<sup>86</sup> Armstrong, Interview with CANSOFCOM Performance Dietician

- Periodizing macronutrient intake to support optimal health, training/operations, and recovery (high-quality carbohydrates, lean protein, and healthy fats);
- Providing antioxidant-rich, nutrient-dense food choices, including high-quality animal and plant-based protein sources and healthy fats to support daily needs and injury recovery;
- Supplying access to foods high in key micronutrients (e.g., vitamin D, calcium, iron, omega-3);
- Supporting digestion and gut health with the provision of high fibre foods, fermented foods, and foods rich in prebiotics and probiotics;
- Supporting hydration with access to a variety of hydrating fluid choices;
- Managing inflammation supported by providing a high quantity of multiple-coloured fruits and vegetables and high-quality, healthy fats;
- Supporting injury protection and recovery, including both musculoskeletal and mTBI, through food first evidence-based nutritional strategies (e.g., vitamin D, DHA-rich omega-3, curcumin, collagen, and other emerging nutrients and nutraceuticals); [and]
- Delivering convenient and nutritionally appropriate food and fluid options for consumption during travel and high tempo training and operational environments.<sup>87</sup>

Once the CANSOFCOM food policy has been codified into the CAF food

doctrine by Strat J4 Foods, the CAF can use this template to improve their mess food choices across the institution.

Coupled with nutrition improvement in CAF messes is the codification of a supplement policy within the CAF. CANSOFCOM is currently working on delineating various supplements (rated from most efficacy to least efficacy based on available data) that will be used as a framework to inform all CANSOFCOM members which supplements are safe and effective for use.<sup>88</sup> The next step in the CANSOFCOM supplement policy is to provide certain approved supplements for members' use. For example, fish oil has been clinically proven to reduce inflammation and could be easily

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<sup>87</sup> Ashley Armstrong, Email Correspondence with CANSOFCOM SOUTH Performance Dietician, February 21, 2022.

<sup>88</sup> Armstrong, Interview with CANSOFCOM Performance Dietician

provided to CAF members.<sup>89</sup> Another example is the use of exogenous ketones. Ketogenic diets, gaining fame in recent years, promote a state of ketosis, which has improved physical endurance in long-duration activities.<sup>90</sup> Exogenous ketones, which promote a state of ketosis, have been trialed in USSOF units since 2017 for their performance-enhancing effects on long-duration missions.<sup>91</sup> Vitamin D, which is cheap and easy to procure and distribute, has a large volume of clinical trials associated with its effects on the human body. In addition to reducing the risk of cancer by 15%, vitamin D supplementation for those deficient has been shown to improve resistance to acute respiratory infection, thus protecting against certain illnesses.<sup>92</sup> Regardless of the specific supplements approved for use within CANSOFCOM, its supplement policy must be ported to the CAF as a handrail to develop a pan-CAF supplement policy.

Once a supplement policy is instituted across the CAF, measures of effectiveness should be created to measure the benefit of these nutritional interventions. In the realm of HPO, how can the CAF implement this on a broad scale to provide quantitative and real-time results? The answer is simple and readily available: biofeedback devices and blood markers. Austrian American management consultant and educator Peter Drucker stated, 'What gets measured gets managed.'<sup>93</sup> Relating to biofeedback devices, there are a

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<sup>89</sup> Monika K. Duda et al., "Fish Oil, but Not Flaxseed Oil, Decreases Inflammation and Prevents Pressure Overload-Induced Cardiac Dysfunction," *Cardiovascular Research* 81, no. 2 (2009), 319. <https://academic.oup.com/cardiovasces/article/81/2/319/286718?login=true>.

<sup>90</sup> Pete J. Cox et al., "Nutritional Ketosis Alters Fuel Preference and Thereby Endurance Performance in Athletes," *Cell Metabolism* 24, no. 2 (2016), 266.

<sup>91</sup> John Rich, Conversation with USSOF Human Performance Director, April 25, 2017.

<sup>92</sup> Yu Zhang et al., "Association between Vitamin D Supplementation and Mortality: Systematic Review and Meta-Analysis," *British Medical Journal* 366 (2019), 8. Adrian R. Martineau et al., "Vitamin D Supplementation to Prevent Acute Respiratory Tract Infections: Systematic Review and Meta-Analysis of Individual Participant Data," *British Medical Journal* 356 (2017), 33.

<sup>93</sup> "What can't be Measured," last modified October 7, accessed November 9, 2021, <https://hbr.org/2010/10/what-cant-be-measured>.

number of these devices commercially available today, including the Aura Ring, Whoop, and other wearables that measure heart rate, HRV, REM sleep, non-REM sleep, and other health markers.<sup>94</sup> Some opponents to biofeedback have stated that these devices are not necessarily accurate and raise operational security concerns regarding personal data storage; however, many devices on the market cater to military members that can mitigate the OPSEC concerns and have acceptable accuracy.

Furthermore, Maj. Kevin Butler and Maj. Frank Foss (Army Special Forces officers currently pursuing a master's in Defense Analysis at the Naval Postgraduate School) recognize the data privacy concerns, especially for SOF, and offer potential solutions (in a USSOF context):

Special Operations Command has an important role to play in helping to address these security and privacy concerns. Letting the Preservation of the Force and Family [POTFF] program lead the development of wearables can help by removing military commanders from the loop, preventing mandatory use and giving participants the power of consent. Personnel associated with this program are also trained and certified to handle protected health information, reducing the risk of a Health Insurance Portability and Accountability Act violation and relieving military commanders of such a burden. Assigning random user identifications can help to avoid the disclosure of personal data. Preservation of the Force and Family personnel can further prevent the re-identification of anonymous users by isolating the wearables' data, thereby preventing their merging with larger military data sets.<sup>95</sup> Additionally, the absolute accuracy of these devices is not the most salient feature

for the CAF. The value proposition of wearables is measuring the relative change in biomarkers and the nudge effect of reminding CAF members to take proactive health

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<sup>94</sup> HRV is a measure of the actual variability of each heartbeat, as each heartbeat is designed to be a little different than the previous one. A low HRV denotes overactivation of the sympathetic nervous system and can be a sign of a chronic health condition.

<sup>95</sup> "Humans and Hardware: How Special Operations can Power Wearable Technology," last modified November 5, accessed November 12, 2021, [https://warontherocks.com/2021/11/humans-and-hardware-how-special-operations-can-pioneer-wearable-technology/?fbclid=IwAR1m03\\_5ciR-IFC9tMg6DFob3lCKR\\_Lq0uKF3AK\\_Qt9eyKrSTNSNnpEE4o4](https://warontherocks.com/2021/11/humans-and-hardware-how-special-operations-can-pioneer-wearable-technology/?fbclid=IwAR1m03_5ciR-IFC9tMg6DFob3lCKR_Lq0uKF3AK_Qt9eyKrSTNSNnpEE4o4).

measures. CANSOFCOM is already trialing biofeedback on core FG courses, and Michael D. Matthews, as part of the US Army Chief of Staff's Strategic Studies Group, strongly advocated for US Army-wide biofeedback devices as far back as 2014.<sup>96</sup> The selection of the specific device the CAF chooses to adopt is outside the scope of this recommendation and is not germane to the argument presented. The pressing recommendation is that the CAF initiate a process immediately to select and implement a biofeedback device pan-CAF. This device would be worn during all core FG for the initial purposes of data collection and monitoring with the longer-term goal of providing HPO measures of effectiveness and verifying if specific holistic health interventions have the desired effects.

While more complicated, extensive physical health testing should occur annually, including blood markers that go beyond the average fasting glucose and CBC blood work required every two or five years. More Canadians and, by subset, CAF members are becoming overweight and obese annually. According to Obesity Canada, between 1985 and 2021, "...the prevalence of obesity in adults rose dramatically, increasing three-fold...".<sup>97</sup> The CAF medical system must also better monitor chronic inflammation within CAF members' blood markers to the extent that CAF members deal with this overweight paradigm. Additional blood markers should be considered annually for all CAF members, such as Omega-6/Omega-3 ratio and Vitamin D levels. Clinical studies have shown that the average western diet provides an Omega-6/Omega-3 ratio of 15/1, whereas decreasing that ratio to 4/1 (more reflective of primitive hunter-gatherer diets),

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<sup>96</sup> Michael D. Matthews, "Human Performance Optimization," in *Headstrong* (New York: Oxford University Press, 2020), 82.

<sup>97</sup> "Epidemiology of Adult Obesity," last modified May, accessed November 23, 2021, <https://obesitycanada.ca/guidelines/epidemiology/>.



can reduce all-cause mortality by up to 70 percent.<sup>98</sup> Also, as previously mentioned, Vitamin D insufficiency can cause numerous health issues, can be easily detected with a simple blood test, and be supplemented by Vitamin D capsules to promote optimal health.<sup>99</sup> Vitamin D levels and Omega3-Omega 6 ratio tests are several examples of how CAF members' health can be measured. The more salient point is that the CAF must start measuring its members' relevant blood markers more frequently and intelligently if the institution genuinely wants to optimize the health of soldiers, sailors, and aviators.

### **Mental Health and Performance Realm Optimization**

As an emerging field in the holistic provision of services, mental health and performance integration in the HPO realm has proven invaluable to understanding, diagnosing, and mitigating the adverse mental health effects of CAF and CANSOFCOM members. Within the CAF and CANSOFCOM, mental health service providers (psychologists, psychiatrists, social workers, mental health nurses, and mental health chaplains) have operated under the medical chain with provider-patient privilege. While necessary to protect patients, this caveat can stifle the ability of other care providers (mental performance specialists, strength coaches, physiotherapists, chain of command) to fully understand mental health/behavioral struggles from a more holistic lens.<sup>100</sup> Adding to the complexity of treatment, within the mental health and performance paradigm, there is an overlap in the delineation of tasks between mental health and mental performance care providers. This ambiguity creates friction between some care

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<sup>98</sup> Artemis P. Simopoulos, "The Importance of the Ratio of Omega-6/Omega-3 Essential Fatty Acids," *Biomedicine & Pharmacotherapy* 56, no. 8 (2002), 365, 374. <https://realmofcaring.org/wp-content/uploads/2020/12/The-importance-of-the-ratio-of-omega-6-omega-3-essential-fatty-acids.pdf>.

<sup>99</sup> Zhang, "Association between Vitamin D Supplementation and Mortality: Systematic Review and Meta-Analysis," 8.

<sup>100</sup> MWO Brian Leblanc, Interview with Special Operations Task Force Sergeant Major, November 3, 2021.

providers. Specific units within CANSOFCOM have taken steps to discuss members' mental health concerns (on a macroscopic level) and other domain issues at Health Advisory Committees, which have proven extremely useful for sub-unit senior enlisted leaders (SELs) to focus on the health and welfare of their members. The CAF's PSP Mental Performance Framework has codified delineation between mental health and mental performance, but it is too early to evaluate how this framing works in practice.<sup>101</sup> Furthermore, in CANSOFCOM, the PSP Mental Performance Framework needs to be operationalized with the delineation of roles, missions, and tasks specific to the formation and approved by Comd CANSOFCOM. The delineation of tasks must be promulgated to the entire membership of CANSOFCOM and be clearly explained such that every member knows the point of entry into mental health and performance care.

Additionally, in mental performance, implementing more comprehensive resilience training across all core CAF FG courseware will increase awareness of coping tools available to CAF members during deployments and other times of heightened stress. Many studies have looked at mental skills training and, although difficult to measure quantitatively, has been shown qualitatively to be helpful to sports injury recovery. For example, a 2015 study involving 309 athletic therapists (AT) and physical therapists (PT) showed a significant positive sentiment from these professionals correlating mental skills training and more positive outcomes during rehabilitation.<sup>102</sup> CANSOFCOM recognizes this benefit and has been implementing mental skills training for over a decade.

CANSOFCOM's SOMA course takes its roots from sports psychologists embedded in

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<sup>101</sup> Theriault, *PSP Mental Performance Program National Framework*

<sup>102</sup> J. Jordan Hamson-Utley, Scott Martin and Jason Walters, "Athletic Trainers' and Physical Therapists' Perceptions of the Effectiveness of Psychological Skills within Sport Injury Rehabilitation Programs," *Journal of Athletic Training* 43, no. 3 (2008), 259.

operator FG courses as early as 2010. A critical facet of mental skills training involves mindfulness, which has been shown to correlate with less stress and more focus.

According to a 2019 study by Sophie Bostock, Alexandra D Crosswell, Aric A Prather, and Andrew Steptoe, mindfulness training provides “... significant improvement in well-being, distress, job strain, and perceptions of workplace social support...”.<sup>103</sup> SOMA has provided invaluable techniques for members to maintain resilience throughout deployed operations; however, this course is not mandatory throughout the formation. Each unit has different methodologies to implement this course throughout its membership and core courseware.

To achieve organizational-level resilience throughout the formation, SOMA must become mandatory for all members of CANSOFCOM, whether operators, specialists or supporters. There is a distinct benefit in building a more comprehensive resilience course pan-CAF, starting with the R2MR framework and adding aspects from SOMA ( such as meditation and visualization techniques) and coalescing other CAF courses (Mental Fitness and Suicide Prevention, Managing Angry Moments, Stress: Take Charge). To support this course as well as individual and group coaching and resilience training, more MPC positions must be created within the CAF. At a minimum, each Bde/Base/Fleet/Wing must have access to an MPC to coordinate mental performance group training, one-on-one coaching, and pre-deployment resilience training. This training will buffer and protect CAF members' well-being and help keep more soldiers, sailors, and aviators on the performance side of the sickness-wellness-fitness spectrum.

### **Family, Social, and Spiritual Realm Optimization**

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<sup>103</sup> Sophie Bostock et al., "Mindfulness on-the-Go: Effects of a Mindfulness Meditation App on Work Stress and Well-being." *Journal of Occupational Health Psychology* 24, no. 1 (2019), 7.

Arguably the domain (or domains depending on the framework used) that creates the most chronic stress throughout the career of CAF members is the family and social domain. The inherent requirement to deploy and be employed on operations around the globe creates family and social stress in many CAF members' lives. Therefore, it is somewhat paradoxical that this domain receives a relatively low focus compared to other domains. In order to truly build resilience across the CAF and optimize each member's outputs, both while deployed and in garrison, and as stated in the previous chapter, more emphasis must be placed on this domain, specifically through increasing family networks within the CAF and more fully integrating the chaplain branch within the HPO paradigm.

Attendance at pre-deployment and unit in-clearance spousal briefs needs to increase. There are several ways to achieve this: briefs could transition to hybrid (in-person and virtual simultaneously), or briefs could become mandatory for all CAF members. It is important to note that care must be taken to respect the boundaries between CAF service and personal lives and families if mandatory briefs are implemented. The first step to increasing attendance at briefs should be to understand the barriers to non-attendance (e.g., child-care, spousal employment commitments) before deciding whether to force CAF members to attend. While the CAF cannot mandate families to attend these briefs, increasing attendance or instituting mandatory unit member attendance may increase awareness of services offered by the MFS at respective units or during deployments. However, mandatory briefings, especially ones outside of work hours, may create agitation amongst some CAF members based on issues such as finding childcare. CANSOFCOM has taken steps to mitigate this issue by making the pre-deployment briefings hybrid in nature and recording them so that families can watch

briefings at their convenience.<sup>104</sup> The author has seen the perceived benefits of this increased briefing attendance firsthand during a pre-deployment briefing to USSOF prior to deployment. Families and members were required to attend; the energy and connection amongst the families within the room was palpable, which was a completely different paradigm from similar pre-deployment briefings attended within CANSOFCOM. The culture of USSOF and the US military writ large can be characterized as vastly more connected and patriotic than the CAF, even amongst families. Despite the cultural differences, the cultural artifact of mandatory spousal pre-deployment briefings for USSOF was another connective function to enable spouses and families to mesh together more coherently during their significant other's deployment. In the long term, whether made mandatory or delivered in a hybrid manner, increasing attendance at family briefings can grow the CAF's family connections during deployments while in garrison and assist with new members and families integrating within their respective new units after postings.

As an addendum to the previous recommendation, all units should coalesce an interdisciplinary team to deliver pre-deployment and unit introduction briefs. CANSOFCOM has successfully used an interdisciplinary team comprised of CAF social workers, MFS representatives, and chaplains to deliver pre-deployment briefings and pre-deployment resilience training. Qualitative feedback given by deployed members stated that the tools gained or refreshed through this training paid off exponentially while deployed. Once HPO teams are stood up across the CAF at fleets/wings/bases, focused

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<sup>104</sup> Ferguson, Interview with Hill Family Services (HFS) Director

effort should go toward preparing and delivering integrated pre-deployment and unit introduction briefs for CAF members and spouses.

An aspect of the spiritual realm that is often overlooked is chaplain use in a deployed context. With Statscan reporting that an all-time low percentage of Canadians identify as being religious (68 percent) since data tracking commenced in 1985, a growing trajectory of atheist/agnostic sentiment within the population of Canada stymies this realm's effectiveness.<sup>105</sup> Chaplains often get overlooked or marginalized at various units when they provide much more than religious services. CAF chaplains are responsible for fostering the spiritual, religious, and pastoral care of CAF members and their families, regardless of religious affiliation, practice, and belief. They provide a conduit for discussing mental health concerns and spirituality without religion.<sup>106</sup> They are, more generally, someone to be relied upon who is there to listen. However, chaplains continue to be marginalized throughout various units/formations without adequate exposure to CAF members.<sup>107</sup> One method to rectify this is to include chaplains in every deployed mission, as a TAV at a minimum. Regardless of the risk and hardship of a mission, many deployed members go through difficulty in the mere separation of themselves from their family, potential boredom, and working frictions with team members in an austere environment. To integrate and normalize chaplains more within the mental health paradigm of the CAF, TAVs for Chaplains to deploy on operations must become routine and a highly recommended activity for all Task Force Commanders

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<sup>105</sup> "Number of Canadians Reporting Religious Affiliations at all-Time Low: StatCan," last modified October 30, accessed November 23, 2021, <https://www.ctvnews.ca/lifestyle/number-of-canadians-reporting-religious-affiliations-at-all-time-low-statcan-1.5645420>.

<sup>106</sup> "Chaplain Careers," last modified n.d., accessed January 14, 2022, <https://forces.ca/en/career/chaplain/>.

<sup>107</sup> Major Felix Roberge, Interview with CANSOFCOM Chaplain, November 16, 2021.

(TFCs) and Task Force Sergeants' Major (TFSM). In addition to the deployment of Chaplains on TAVs to assist deployed members, CAF Social Workers (SW) must also be included on these TAVs. Because Chaplains and SW are military members, deployment is a relatively straightforward process, and the main limiting factor is the capacity of both trades to conduct their duties and provide service to members in garrison. Despite a potential capacity issue, any HPO service offered to a member while deployed can buffer resilience and increase operational outputs of the organization and is strongly recommended.

### **Is CAF HPO Already Optimized?**

While it is easy to characterize the CAF as not focusing enough on HPO, especially against CANSOFCOM and other military organizations with broader and deeper HPO programs, this comparison may not be justified. CANSOFCOM employs slightly less than 3000 personnel, while according to a CAF 101 website, "The CAF comprises approximately 68,000 Regular Force and 27,000 Reserve Force members...".<sup>108</sup> As such, it may be unrealistic to expect that the CAF can scale the resources and structure of OPF2 to optimize HPO programs with the same flexibility as CANSOFCOM. Additionally, the CAF has recognized that human performance is vital in CAF members' longevity and optimal human performance through the previously discussed BALANCE strategy. Although sub-optimized, this program attempts to reconcile that CAF members require more than basic fitness tests to operate at their health apogee. As mentioned in Chapter 1, the CA wrote an implementation plan for

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<sup>108</sup> "Canadian Armed Forces 101," last modified September 30, accessed November 25, 2021, <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/transition-materials/defence-101/2020/03/defence-101/caf-101.html>.

holistic well-being in 2015 called CAIPS. With its six main pillars of fitness (physical, emotional, social, spiritual, familial, and intellectual), this strategy seemed like a real effort to integrate health and wellness across the biopsychosocial domain. However, according to a former Canadian Manoeuvre Training Centre (CMTC) G1 (personnel officer), The Canadian Army Doctrine and Training Centre (CADTC) was given CAIPS implementation as a core deliverable in 2015 but was ordered to put the program on pause in 2017 due to BALANCE strategy implementation. CADTC was then ordered to start it again in 2019 but has not produced any tangible outputs.<sup>109</sup> Additionally, the DT THWS has provided a comprehensive framework from which operational level commands can build HPO structure and programming, but operationalizing THWS will take a significant amount of time. The BALANCE strategy could be used as a start state for the physical realm and the mental health and family/social/spiritual health realm. In the mental health domain, the CAF relies on the R2MR framework to focus resources provided through MFSSs, but these resources do not seem to be well synchronized with a central node providing oversight, management, and connection between individual cases and group trends. This perceived lack of focus is insufficient to provide strategies and techniques to build resilience and mitigate acute and chronic stress mental health effects. The CAF recognizes that more comprehensive HPO programs are required, but currently, it seems as though strategies are developed without much progress at the care provider level. Further measures should be taken at the tactical level to optimize CAF soldiers, sailors, and aviators' total health and wellness.

### **Room for Improvement**

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<sup>109</sup> Major Stephen Paish, Conversation with Former CMTC G1, November 9, 2021.



This chapter has drawn out several recommendations that would be advantageous to any HPO program. Formal governance, reporting, and command structure are the start state for defining roles, missions, and tasks across all domains and care providers. In the physical health realm, codifying supplement and nutrition policy increased blood marker testing, and providing clinically proven supplements will aid in the health and wellness of CAF members. A longer-term goal of hiring more physiotherapists should also be considered. In the mental health realm, hiring or contracting more mental health services must happen immediately to address the backlog of mental health requests from CAF members. Additionally, work should focus on implementing the PSP mental health strategy to ensure proper delineation of roles, missions, and tasks between mental health specialists and MPCs and improving relationships and cross-referrals in both domains. SOMA should be made mandatory for all CANSOFCOM core FG courseware, and R2MR should be updated, integrated with other CAF mental health programs, and taught on every core CAF FG course. In the family, social and spiritual realms, the interaction between these services and CAF members should increase, focusing on family attendance during pre-deployment briefings, more family event attendance to foster social cohesion, and more inter-disciplinary support to family events and briefings. Finally, chaplains should become more involved with deployment care and mental health support to CAF members and work to break the current stigma about chaplains only providing spiritual care. While some improvements take considerable personnel and monies to implement, others are more easily achievable. Regardless, implementing even some of these recommendations will provide a more positive environment and higher resilience and outputs of CAF members.

The next generation of HPO must also be considered to optimize human performance as the gap between humans and machines continues to close. The next chapter examines what the future of HPO could look like with more interdependence on technology to enable humans to remain the best hardware.

## **CHAPTER 4 – THE FUTURE OPERATING ENVIRONMENT: HUMAN-MACHINE SYMBIOSIS**

The preceding analysis has primarily focused on what achievements the CAF and CANSOFCOM can make in the near and mid-term (between now and 2 years) to optimize how the institution truly takes care of its members. The CAF expects that its members are fit to deploy and conduct operations in austere environments for lengthy periods, under stress, and away from their families. As such, CAF members should expect that the institution should employ the requisite resources that ensure longevity, family stability, and performance for the duration of a member's career. While not a panacea, the preceding recommendations will help meet CAF members' performance, longevity, and mental wellness goals.

Nevertheless, who is looking at the long-term initiatives to optimize human performance? What does HPO mean in 10 years? A glimpse at emerging technologies offers clues to how human performance will evolve over the next decade, specifically the evolution of the human-machine interface.

### **Bringing Humans and Machines Together**

How close are humans integrated with machines? Walk down the street and watch people looking at their smartphones. It could be argued that the human-machine interface is already here, except it is cumbersome, slow, and not as enmeshed as it should be.

CANSOFCOM is already living in an embryonic human/machine interface paradigm throughout the operational spectrum. CANSOFCOM relies on technology to provide enhanced situation awareness and communications ability on deployed operations. This paradigm has not fully extended to the HP realm, although innovations present themselves almost daily through the Science and Tech (S&T) component of CANSOFCOM FD, albeit in an ad-hoc manner. Real-time biometrics collectors are being trialed, heart rate monitors are typical on core FG courses, and studies are ongoing to find the best way to correlate biological data with performance on core courseware. The pace of this data collection and analysis is expected to increase with more easily implementable technology. It is a distinct possibility that every CANSOFCOM operator will be wearing a biofeedback device in a decade or have one enmeshed within them. Human and machine interfaces will continue to interweave into a more entrenched relationship. For example, flexible hybrid electronics (FHE) are being extensively studied as a human-machine interface, primarily in healthcare diagnostics but with the potential for a wide range of applications. These implantable devices, both supra and sub-cutaneous, are being studied using a range of potential materials and biodegradability attributes to cover diverse requirements.<sup>110</sup> This technology has obvious implications for both FD and future operations for militaries.

Exoskeletons are another facet of the human-machine interface that has been in development for over a decade but continues to show promise in the future for exponential improvements on the battlefield. A meta-analysis by Sawicki, Beck, Kang

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<sup>110</sup> W. Hong Yeo and Jae-Woong Jeong, *Soft Material-Enabled Electronics for Medicine, Healthcare, and Human-Machine Interfaces* (Basel: MDPI - Multidisciplinary Digital Publishing Institute, 2020), 1, 5, 19-20.

and Young in 2020 looked at studies on the metabolic economy of various lower-body exoskeletons since 2009. Study results vary, but the analysis showed between 3.3 and 19.8 percent metabolic savings in walking when wearing an exoskeleton and between 3.9 and 8 percent while running.<sup>111</sup> This savings is significant, as an almost 20% metabolic savings significantly affect food carriage requirements and energy expenditure during operations. The US military has taken notice of exoskeletons. The US military's Defense Advanced Research Projects Agency (DARPA) has been in partnership with industry since 2000, funding a US\$50 million project to design and build an exoskeleton for US military members to wear.<sup>112</sup> Sarcos Robotics ultimately won the DARPA project to design and build an exoskeleton and has developed numerous models, the most advanced of which is the Guardian XO. Commercial variants of this model are expected in late mid-2022. US military applications are on the horizon as well, as The US Air Force, Marines, and USSOCOM are all heavily invested in this technology, as Sarah Rowland writes in Utah Business magazine:

In 2017, the United States Air Force awarded Sarcos a Small Business Innovation Research (SBIR) contract to develop a full-body exoskeleton for logistics applications. A second contract was awarded in 2018 for Sarcos to deliver a more robust version of its full-body exoskeleton robot, with a specific focus on use cases relevant to Air Force logistics applications...Soon after, the United States Special Operations Command (USSOCOM) awarded a contract to Sarcos to deliver a pre-production, autonomous version of its Guardian XO full-body exoskeleton, leading to the US Marine Corps' contract for an Alpha version of the Guardian XO.<sup>113</sup>

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<sup>111</sup> Gregory S. Sawicki et al., "The Exoskeleton Expansion: Improving Walking and Running Economy," *Journal of NeuroEngineering and Rehabilitation* 17, no. 1 (2020), 3. <https://link.springer.com/article/10.1186/s12984-020-00663-9>.

<sup>112</sup> "Raytheon XOS 2: Second Generation Exoskeleton," last modified September 28, accessed November 12, 2021, <https://newatlas.com/raytheon-significantly-progresses-exoskeleton-design/16479/>.

<sup>113</sup> "Sarcos Robotics is Making Iron Man Suits for the Government," Utah Business, last modified March 9, <https://www.utahbusiness.com/sarcos-robotics-is-making-iron-man-suits-for-the-government/>.

Imagine a conflict where real-time biometric data can be presented to course cadre or commanders deployed to ensure their individuals and task forces are operating at maximum efficiency and their operators are near the apex of the Yerkes-Dodson curve (stress-response curve, shown below). If they are under too much stress, injured, or fatigued, their data will automatically increase the outputs of their attached exoskeleton to alleviate stress and continue the mission or adjust the plan to account for performance degradation. This narrative was the work of science-fiction a decade ago but now seems an inevitable reality.

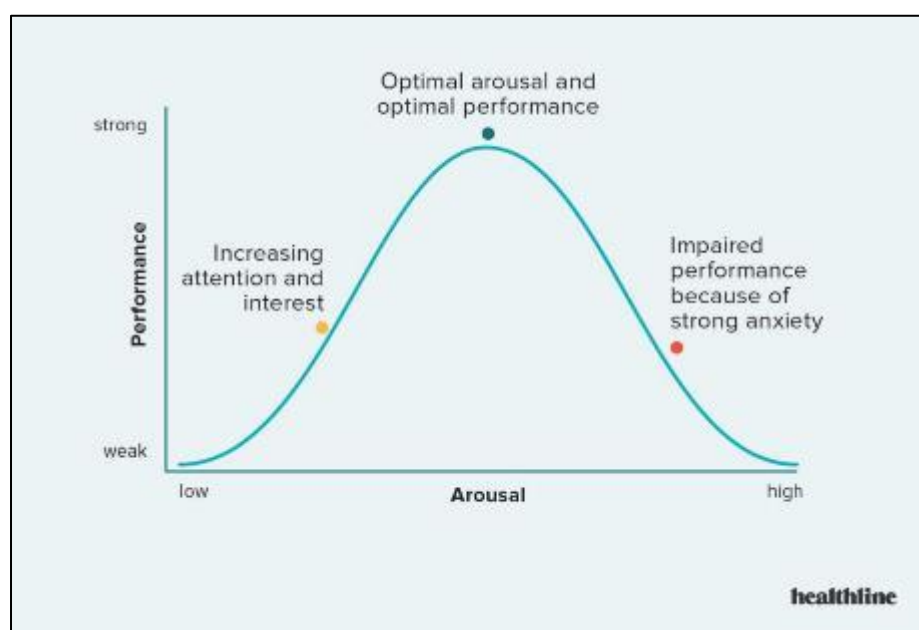


Fig. 6 – Yerkes-Dodson Law Bell Curve<sup>114</sup>

The CAF and CANSOFCOM are behind the US Military in researching and developing these technologies, Increased focus on emerging human-machine interface in the HPO realm must take place or the CAF risks being antiquated in the future realm of HPO. Focused S&T initiatives looking toward generational leap technologies must be

<sup>114</sup> "What the Yerkes-Dodson Law Says about Stress and Performance," last modified October 22, accessed November 12, 2021, <https://www.healthline.com/health/yerkes-dodson-law>.

engrained in CANSOFCOM FD Directorate and the Chief FD Directorate within the CAF. Currently, within CANSOFCOM FD, S&T is focused on shorter-term human-machine interfaces and only nascently exploring next-generation biofeedback devices and exoskeletons.<sup>115</sup> More focused consideration on experimentation and R&D should be given to these technologies if CANSOFCOM and the CAF want to be postured to optimize the human-machine interface and the next generation of HPO.

## CONCLUSION

For years, the CAF's philosophy has been "people first, mission always".<sup>116</sup> Yet, is the CAF following this tenant amid a COVID pandemic, an understaffed CAF, and an increased operational tempo, both domestically and internationally? Given the preceding analysis, the frustrations espoused by numerous senior officers and mid-level institution leaders, and the increase in mental health issues in the forces, the answer seems to be no.

Despite a perceptually sub-optimized HPO focus on the CAF, the situation can improve. There are myriad examples of other nations' HPO programs that the CAF can use as a scaffolding to bolster its human performance services. Although not equipped with similar resources and personnel as POTFF, simple governance and structure improvements can impact HPO throughout the force. There is no governance or structure for HPO throughout the CAF and only a loose structure for CANSOFCOM. The primary task for HPO in the CAF is to establish this structure with a senior officer at the strategic level being appointed the HPO-I for the CAF. This position must conduct planning to cement an HPO structure within every level of the CAF, from the strategic to the tactical.

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<sup>115</sup> LCol Blair McNaught, Interview with CANSOFCOM Deputy Director Force Development, November 23, 2021.

<sup>116</sup> "CAF Connection: About Us," last modified n.d., accessed February 23, 2022, <https://www.cafconnection.ca/Demo/About-Us.aspx>.

They must also create an HPO-I position at every level down to the unit. Only once this structure and governance is established can the CAF truly optimize its functions in the physical, mental, and family/social/spiritual realm.

The CAF is stymied by a lack of resources, such as physiotherapists, in the physical realm. Additionally, there lacks a quantitative focus on physical health metrics and measurements, a dearth of nutritional improvement focus, and an absence of supplement policy. Through thorough examination, the CAF can solve these issues. For example, more military physiotherapists can boost the service provided to CAF members; A deeper look at blood markers to measure physical health tracking can prevent a physical decline in members. Simple biofeedback devices provided to all CAF members will help measure what matters and manage those deficiencies. Rewriting the CAF nutritional policy will optimize the food provided in CAF messes, and a codified supplement policy will positively affect the physical health of CAF soldiers, sailors, and aviators.

The optimization of the mental health realm is lagging behind the physical realm. The mental health crisis across Canada permeates into the CAF by being a sub-set of society. There is a severe shortage of psychologists in the CAF, R2MR training is sub-optimized and MPC expertise barely exists. However, with proper focus, mental health resources can improve. More contracted psychologists' services, an increased focus on hiring civilian psychologists (more complex) and military social workers (more accessible), and more frequent and more profound training through the R2MR framework will help. A concerted effort to increase MPC services throughout the CAF must be undertaken, as these positions can alleviate the burden on psychologists and social

workers, conduct individual and team coaching sessions, and build resilience throughout the institution. CAF members deserve a more significant effort in mental health provision of care and buffering the CAF's collective mental resilience.

Family, social, and spiritual networks are often overlooked within the CAF, but more recognition of the importance is becoming more apparent as mental health issues permeate society in recent months. Still, MFS are often marginalized regarding family support. Unit welcome and pre-deployment family briefings are often under-attended, and chaplain services are not being used as designed. The CAF must do better in codifying these services to help families build resilience and understand their services. Unit welcome briefs and pre-deployment briefs can become hybrid and/or mandatory for CAF members and strongly encouraged for families to force a culture of family cohesiveness. These briefings should tie into family days or other cohesion-oriented activities to maximize attendance and strengthen inter-family linkages. Finally, chaplains should become more involved in deployed operations with mandatory deployed forces visits to provide a conduit for mental and spiritual health conversations with members overseas.

Are humans genuinely optimized in the CAF? With the implementation of the previously mentioned recommendations, they can be. With a shrinking CAF, no foreseeable reprieve from domestic and international operations, and significant mental stresses, the CAF must provide precision HPO effects across the institution for the longevity and performance of all CAF members. The CAF has recognized at least some of these issues, as a significant line of effort is the CAF reconstitution plan and the DT THWS. In an operational context, reconstitution involves rest, recovery, and maintenance



of critical equipment. Thus, in an HPO paradigm, these tenants must remain. With more focused efforts on HPO programs and care providers, the CAF can optimize its force and show its soldiers, sailors, and aviators that humans are truly the best hardware.

### Further Exploration

Numerous articles and books have been written on the broad principles and specific minutia of HPO. Several more germane books to focus CAF HP programming are *Peak Performance* by Brad Stulberg and Steve Magness and *Headstrong* by Dave Aspery. Furthermore, several books about the future of the human-machine interface provide valuable insights into the possibilities of HPO in the coming years. These include *The Neurogeneration* by Tan Le, *The Inevitable* by Kevin Kelly and *The Future is Faster Than You Think* by Peter Diamandis and Steven Kotler.

To understand a scaffolding for implementing certain facets of HPO, various sport HPO structures should be further explored. Many professional sports teams have loose linkages to the CAF (Eugene Melnik, former owner of the Ottawa Senators, was a former honorary Colonel of the RCAF 414 Sqn) and have well-developed HPO programs. The CAF should pursue a strategy of professional sports team visits and discussions to learn structure, governance, and best practices from these teams.

From a military perspective, the US military's POTFF structure in the most developed FVEYs nations should be explored in detail. HPO-I structures and governance are well-established and function more symbiotically than the ad-hoc nature of CAF programming. Visits to POTFF HPO-I personnel by CAF members charged with HPO structure implementation would benefit the CAF through learning best practices. Lastly, specific CANSOFCOM units have more developed HPO-I programs than other CAF units and formations. Continued consultation and sharing of lessons learned between CAF HPO-I and CANSOFCOM HPO-I would generate an optimized structure and

governance model in the CAF while avoiding the same missteps that CANSOFCOM has made during their HPO-I implementation journey.

**Annex A – Defence Team Total Health and Wellness Strategy – Lines of Effort**  
 (including /Action, Outcome, Responsible Organization and Timeline)<sup>117</sup>

<b>LINE OF EFFORT 1: COMMUNICATE, EDUCATE, COLLABORATE</b>				
Striving for improved wellness among the Defence Team means ensuring Defence Team members understand all aspects of their health and wellness, in order to take the necessary steps to implement solutions and access the necessary services they require for support. Actions in this line of effort will lead to Defence Team members: <ul style="list-style-type: none"> <li>• Better managing life challenges by applying oral health and wellness knowledge and awareness;</li> <li>• Applying effective solutions and accessing the services they need; and</li> <li>• Striving for optimal health and wellness outcomes.</li> </ul>				
<b>Strategic Objective 1.a.i</b> Increase knowledge of health and wellness through collective promotion activities.				
	Action	Outcome	Organization	Timeline
1	Develop and implement a Total Health and Wellness (THW) Communications Plan	<ul style="list-style-type: none"> <li>• Defence Team (DT) members are aware of the programs and services available to assist them; and</li> <li>• DT members are using the available THW programs and services.</li> </ul>	<b>Primary</b> ADM(PA)  <b>Secondary</b> ADM(HR-Civ), Chief Military Personnel (CMP), Personnel Support Program (PSP)	Fall 2021

<b>Strategic Objective 1.b.i</b> Increase health and wellness literacy through harmonized training and education.				
	Action	Outcome	Organization	Timeline
2	Coordinate the development and implementation of an integrated THW Training Plan	<ul style="list-style-type: none"> <li>• Increase in DT members receiving training and education on THW;</li> <li>• DT members have knowledge of THW and understand the principles and concepts of how to achieve optimal health and wellness; and</li> <li>• DT members understand the risks and benefits associated with a lifestyle of THW.</li> </ul>	<b>Primary</b> Defence Team –Human Resources Committee (DT-HRC) (Total Health and Wellness Sub-Committee (THW SC))  <b>Secondary</b> PSP, Canadian Forces Health Services (CFHS), Defence Learning Network (DLN)	Fall 2021
<b>Strategic Objective 1.c</b> Engage champions and advocates to promote wellness.				
	Action	Outcome	Organization	Timeline
3	Leverage existing Champion and Advocate Programs for THW promotion	<ul style="list-style-type: none"> <li>• Recurrent endorsement of THW by Senior Leadership;</li> <li>• A rewards program to recognize THW advocates; and</li> <li>• DT members are using the available THW programs and services.</li> </ul>	DT-HRC (THW SC)	Spring 2022

<sup>117</sup> Chief of Defence Staff, *Defence Team Total Health and Wellness Strategy*

**LINE OF EFFORT 2: STRENGTHEN GOVERNANCE**

A Total Health and Wellness Governance Framework is necessary to support greater alignment and integration of health and wellness into organizational priorities. Strong governance will lead to well-guided and supported initiatives, advancing the total health and wellness of the Defence Team.

**Strategic Objective 2.a.1** Engage leadership through the DT-HRC Total Health and Wellness Sub-Committee.

	Action	Outcome	Organization	Timeline
4	Formalize Total Health and Wellness Governance Structure	<ul style="list-style-type: none"> <li>THW initiatives and efforts are prioritized, sustained and progressing as a high priority for the DND/CAF.</li> </ul>	DT-HRC (THW SC)	Winter 2020-21

**Strategic Objective 2.b.1** Integrate Base and Wing health and wellness committees.

	Action	Outcome	Organization	Timeline
5	Develop a THW reporting structure that connects the THW SC with Base and Wing Health and Wellness Committees to share information and best practices.	<ul style="list-style-type: none"> <li>An integrated THW task force with under standing into health and wellness issues at the regional (Base/Wing) level; and</li> <li>THW initiatives and efforts are well informed and supported at both regional and national levels to advance the THW of the Defence Team.</li> </ul>	DT-HRC (THW SC)	Spring 2022

**Strategic Objective 2.c.1** Build a health and wellness monitoring framework for continuous improvement.

	Action	Outcome	Organization	Timeline
6	Develop a robust Performance Measurement Framework (PMF) and a THW dashboard to capture ongoing THW-related assessment activities and performance data	<ul style="list-style-type: none"> <li>THW initiatives and efforts apply lessons learned and evidence-based decision making to facilitate continuous improvement efforts; and</li> <li>A THW continuous improvement framework that uses an assessment-to-solutions approach and is integrated with the PMF.</li> </ul>	DT-HRC (THW SC)	Fall 2022
7	Stand up a THW Monitoring Office to ensure ongoing program monitoring of the THWS	<ul style="list-style-type: none"> <li>THW initiatives and efforts apply lessons learned and evidence-based decision making to facilitate continuous improvement efforts; and</li> <li>A THW continuous improvement framework that uses an assessment-to-solutions approach and is integrated with the PMF.</li> </ul>	DT-HRC (THW SC)	Spring 2021

**LINE OF EFFORT 3: ENABLE A HEALTHIER WORKPLACE**

A healthy work environment which supports the pursuit of wellness is essential to ensuring Defence Team members are fit and resilient. Enabling a healthier workplace will lead to:

- Total Health and Wellness initiatives, programs and services that meet the overall needs of the Defence Team; and
- A safe and positive workplace where Defence Team members feel supported, valued and empowered.

**Strategic Objective 3.a:** Employ continuous assessment-to-solutions approach to understand the needs of the workforce.

	Action	Outcome	Organization	Timeline
8	Manage a central repository of existing DND/CAF personnel research to facilitate access to knowledge and information	<ul style="list-style-type: none"> <li>• Continuous assessment data and solutions to understand and meet the THW needs of the DT;</li> <li>• THW initiatives, programs and services owners have access to and are aware of available DT health and wellness-related research, including, and in addition to, DWWWS;</li> </ul>	Director General Military Personnel Research and Analysis (DMPRA)	Fall 2022
9	Conduct the Defence Workplace Wellbeing Survey (DWWWS)	<ul style="list-style-type: none"> <li>• Continuous DT health and wellness assessment provides THW initiatives, programs and services owners with a better understanding of the needs of the DT workforce to support continuous improvements; and</li> <li>• THW initiatives, programs and services owners are using DND/CAF personnel research to inform program designs and decision-making practices.</li> </ul>		Fall 2022

**Strategic Objective 3.b:** Address workplace stressors to increase workplace well-being.

	Action	Outcome	Organization	Timeline
10	Implement the Integrated Defence Team approach to building a healthy workplace	<ul style="list-style-type: none"> <li>• Identified risk factors and solutions for psychological health and safety in the DT workplace;</li> <li>• Departmental action to fulfill the THW L1 Response Action Plan;</li> <li>• Reduced risk of harassment and violence in the workplace; and</li> <li>• Defence Team members have positive workplace well-being.</li> </ul>	Integrated Conflict and Complaint Management (ICCM)	Spring 2021
11	Adapt the National Standard on Psychological Health and Safety in the Workplace		Director of General Safety (D Safe G)	Fall 2021
12	Continue to address issues of sexual misconduct through DGPMC and their strategy, The Path to Dignity and Respect: The Canadian Armed Forces Strategy to Address Sexual Misconduct.		Sexual Misconduct Response Centre (SMRC) and Director General Professional Military Conduct (DGPMC).	Ongoing
13	Continue to operationalize Integrated Conflict and Complaint Management		ICCM	Ongoing

**Strategic Objective 3.b.i:** Address workplace stressors to increase workplace well-being (Cont'd).

	Action	Outcome	Organization	Timeline
14	Develop and Implement THW L1 Response Action Plans	<ul style="list-style-type: none"> <li>Identified risk factors and solutions for psychological health and safety in the DT workplace;</li> </ul>	All L1s	Fall 2022
15	Achieve full operational capability for the Civilian Return to Work Program	<ul style="list-style-type: none"> <li>Departmental action to fulfill the THW L1 Response Action Plan;</li> </ul>	ADMB@R-Civil	Spring 2022
16	Achieve full operational capability for the CAF Return to Duty program	<ul style="list-style-type: none"> <li>Reduced risk of harassment and violence in the workplace; and</li> <li>Defence Team members have positive workplace well-being.</li> </ul>	Canadian Armed Forces Transition Group (CAF TG)	Winter 2022

**Strategic Objective 3.c.i:** Empower leadership to better balance organizational demands and the needs of their people.

	Action	Outcome	Organization	Timeline
17	Conduct research to assess and understand leaders' challenges to balancing organizational demands and the wellness of their teams.	<ul style="list-style-type: none"> <li>The organization will have understanding of leadership's challenges when balancing organizational demands and employee needs;</li> </ul>	DGMPRA	Fall 2022
18	Coordinate the development of resources (i.e., toolkits, forums, advisory support) for leaders to promote a healthy work environment.	<ul style="list-style-type: none"> <li>Defence Team leaders are empowered to effectively balance the health and wellness of their members with the goals of the organization; and</li> <li>Defence Team leaders are actively engaged in supporting the Total Health and Wellness of the Defence Team.</li> </ul>	DT-HRC (THW SC)	Spring 2022

**Strategic Objective 3.d.:** Embrace a culture of wellness.

	Action	Outcome	Organization	Timeline
19	Leverage current culture alignment activities to promote the psychological health and wellness of the Defence Team.	<ul style="list-style-type: none"> <li>A workplace culture that promotes Total Health and Wellness across the Defence Team;</li> </ul>	DT-HRC (THW SC)	Fall 2021
20	Coordinate the development and implementation of a stigma-reduction Action Plan.	<ul style="list-style-type: none"> <li>A psychologically safe and positive DT workplace; and</li> </ul>	DT-HRC (THW SC)	Spring 2022
21	Develop and implement an Injury Prevention and Surveillance System to reduce the burden and impact of injuries in the CAF.	<ul style="list-style-type: none"> <li>DT members are supported, valued and empowered at work.</li> </ul>	CFHS, Director Force Health Protection (DFHP)	Winter 2025

**LINE OF EFFORT 4: IMPROVE ACCESS TO CARE AND SUPPORT**

No point of wellness outcomes can be realized without access to the resources required to effect change. Improving access to care and support is necessary if the DNDICAF is to have a positive impact on the health and wellness of Defence Team members.

**Strategic Objective 4.a.** Improve availability of services to meet the wellness needs of all Defence Team members.

	Action	Outcome	Organization	Timeline
22	Conduct a comprehensive review of all THW-related programs and services available regionally across DND/CAF to identify gaps and redundancies and align efforts.	<ul style="list-style-type: none"> <li>THW-related programs and services are available to meet the regional needs of DT members.</li> </ul>	DT-HRC (THW SC)	Fall 2022
23	Enable virtual care platforms to provide secure and convenient communication options for patients.		CFHS	Fall 2025

**Strategic Objective 4.b.** Increase accessibility to programs and services across the Defence Team.

	Action	Outcome	Organization	Timeline
24	Standardize regional communication mechanisms to ensure consistent THW program and service information is provided to all Defence Team members and military families.	<ul style="list-style-type: none"> <li>Defence Team members have improved access to THW programs and services; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	<b>Primary</b> DT-HRC (THW SC)  <b>Secondary</b> PSP, CFHS, ADM(HR-Civ)	Fall 2022

**Strategic Objective 4.b.** Increase accessibility to programs and services across the Defence Team. ICont'd

	Action	Outcome	Organization	Timeline
25	Provide Defence Team members an annual orientation on available THW services and programs at the regional level.	<ul style="list-style-type: none"> <li>Defence Team members have improved access to THW programs and services; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	<b>Primary</b> ADM(HR-Civ), CMP  <b>Secondary</b> DT-HRC (THW SC), Regional Health and Wellness Committees	Fall 2022, Ongoing
26	Partner with external program and service providers to increase offerings where and when required.			Fall 2022, Ongoing
27	Enhance Health Services to ill and injured service personnel by increasing support for occupational therapy and case management.		CFHS	Spring 2022
28	Expand the Office of Disability Management.		Director General Workplace Management (DGWM)	Fall 2021



**Strategic Objective 4.b.:** Increase accessibility to programs and services across the Defence Team (Cont'd).

	Action	Outcome	Organization	Timeline
29	Modernise the Military Family Support Program (MFSP) and increase programs and services nationally and locally to include the virtualization of family services	<ul style="list-style-type: none"> <li>Defence Team members have improved access to THW programs and services; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	Director Military Family Services (DMFS)	Fall 2021
30	Implement THW-related activities outlined in the CAF Suicide Prevention Action Plan		Director Personnel Strategy (DPS)	Fall 2021
31	Achieve full operational capability for CAF TG		CAF TG	Spring 2024

**Strategic Objective 4.c.:** Identify and reduce barriers to Total Health and Wellness.

	Action	Outcome	Organization	Timeline
32	Coordinate the routine review of existing national programs and services to address evolving needs of DT members	<ul style="list-style-type: none"> <li>Barriers to care and support that impact the Health and Wellness of Defence Team members are reduced; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	DT-HRC (THW SC)	Spring 2023
33	Stand-up a Tiger Team to identify and implement opportunities to align existing programs and services to a wider Defence Team audience where and when appropriate			Winter 2022-23

**Strategic Objective 4.c.:** Identify and reduce barriers to Total Health and Wellness. [Cont'd].

	Action	Outcome	Organization	Timeline
34	Implement the Spiritual Resiliency Strategy	<ul style="list-style-type: none"> <li>Barriers to care and support that impact the Health and Wellness of Defence Team members are reduced; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	Chaplain General (Chap Gen)	Spring 2022
35	Implement BALANCE – The CAF Physical Performance Strategy		Commands, PSP, CFHS	Ongoing

**Strategic Objective 4.d.:** Enable women's long-term health and ability to excel in their chosen occupation.

	Action	Outcome	Organization	Timeline
36	Implement the Women's Health Framework	<ul style="list-style-type: none"> <li>Barriers to care and support that impact the Health and Wellness of Defence Team members are reduced; and</li> <li>Improved access to care and support has a positive impact on the THW of DT members.</li> </ul>	CFHS	Spring 2022

**LINE OF EFFORT 5: ALIGN AND INTEGRATE**

The *Defence Team Total Health and Wellness Strategy* calls for a systematic review of policies and programs to ensure any gaps are filled and any unwanted redundancies are addressed. This will lead to more responsive and relevant policies and programs that meet our needs today and into the future. This line of effort aims to reduce the number of gaps and barriers to the health and wellness of the Defence Team.

**Strategic Objective 5.a.:** Increase total health and wellness stakeholder collaboration for a comprehensive approach to health and wellness.

	Action	Outcome	Organization	Timeline
37	Identify opportunities for increased collaboration in support of a comprehensive approach to Health and Wellness.	<ul style="list-style-type: none"> <li>• Increase in THW stakeholder collaboration for integration and alignment of efforts and activities; and</li> <li>• Integrated and aligned THW efforts reduce the number of gaps and barriers for a comprehensive approach to health and wellness for Defence Team members.</li> </ul>	DT-HRC (THW SC)	Ongoing

**Strategic Objective 5.b.:** Conduct a policy review to ensure relevant and responsive guidance and direction.

	Action	Outcome	Organization	Timeline
38	Explore the development and implementation of a THW policy framework that defines accountabilities at all levels of the organization and governance structures across the dimensions of health	<ul style="list-style-type: none"> <li>• Responsive and relevant THW policies provide guidance and direction to programs and services; and</li> </ul>	Director Military Personnel Policy Integration [DMPPi]	Spring 2022
39	Review all THW-related policies across DND/CAF to a) identify gaps; b) identify unwanted redundancies; c) eliminate barriers to wellness; and d) set priorities for policy renewal and development activities	<ul style="list-style-type: none"> <li>• Integrated and aligned THW efforts reduce the number of gaps and barriers for a comprehensive approach to health and wellness for Defence Team members.</li> </ul>	DMPPi	Spring 2022

**Strategic Objective 5.c.:** Conduct a review of total health and wellness programs to improve alignment and integration.

	Action	Outcome	Organization	Timeline
40	Leverage activities 32 and 33 to conduct a comprehensive review of all Total Health and Wellness programs and identify any gaps and unwanted redundancies which create a barrier to Defence Team wellness	<ul style="list-style-type: none"> <li>• Integrated and aligned THW efforts reduce the number of gaps and barriers for a comprehensive approach to health and wellness for Defence Team members.</li> </ul>	DT-HRC (THW SC)	Spring 2023

## Annex B – CAF BALANCE Strategy – Measurement of Sought-After Outcomes<sup>118</sup>

PROCESS			
INDICATOR	TARGET	SOURCE	FREQ
<b>S1.</b> Number of activities and interventions implemented by LSCs.	1 activity per year	HP's ACCESS reporting platform	Annually
<b>S2.</b> Change in objective measure of activity friendliness of base environments	Within-base % score improvement	Project FEAL (Forces Envs for Active Living)	2018 and every 4 years thereafter
<b>S3.</b> Change in perception of Culture of Fitness/ Wellness	Within-base % score improvement by domain	Culture of Fitness/ Wellness Survey	2019 and every 4 years thereafter
<b>S4.</b> % of National LOE activities started, completed or implemented			Annually

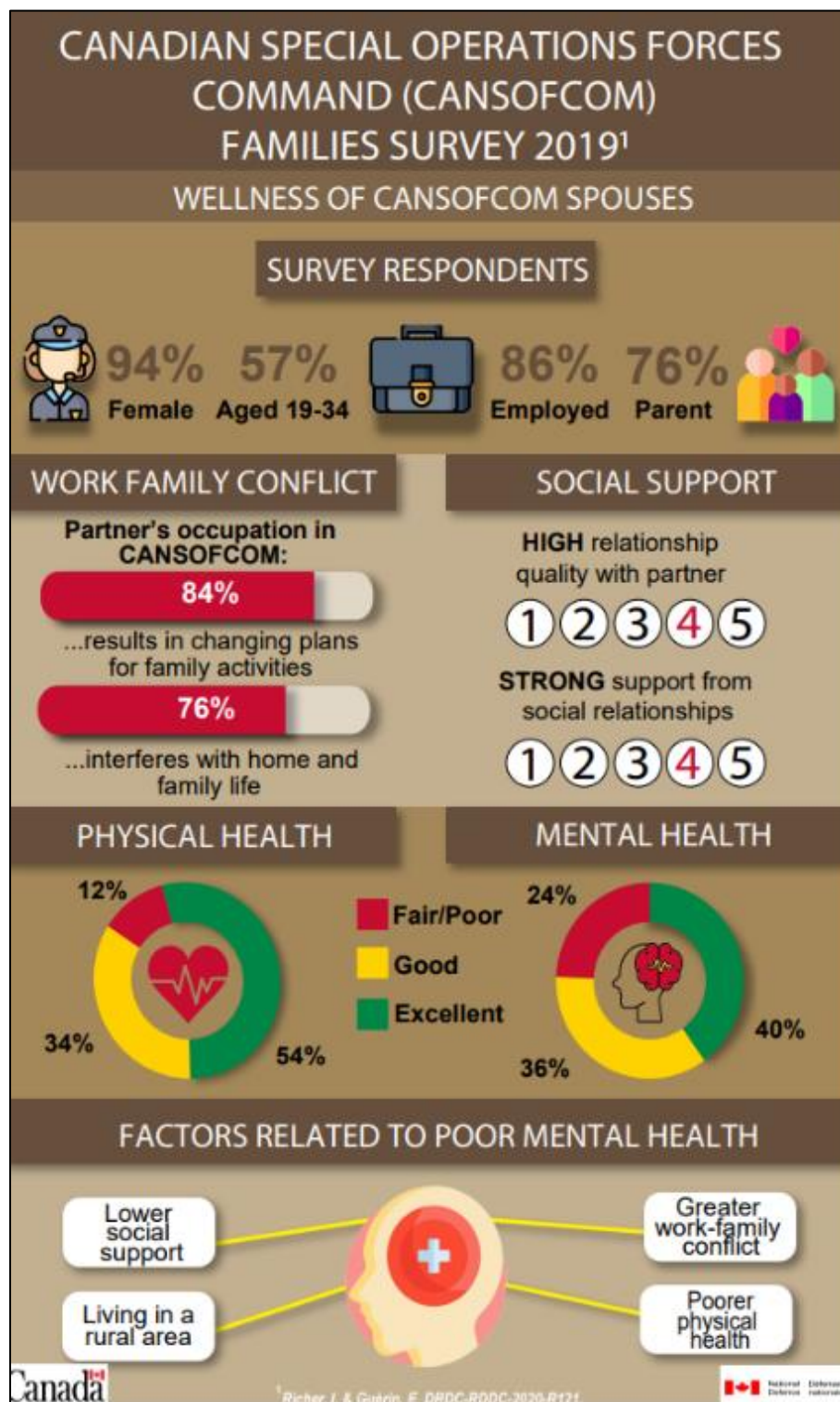
  

FEAL	Forces Environment for Active Living
HUS	Health and Lifestyle Information Survey: Self-reported survey data on a variety of health behaviours and conditions – repeated every 4 years
HR-BASE	Study which objectively assess activity and sleep behaviours on a representative sample of CAF personnel – can be repeated as required
FP	Fitness Profile: Annual fitness assessment of all CAF personnel
CFHS	Canadian Forces Health Information System: Electronic health records and other linked data.
WHO	World Health Organization

BEHAVIOUR					PERFORMANCE			
	INDICATOR	TARGET	SOURCE	FREQ	INDICATOR	TARGET	SOURCE	FREQ
PHYS ACT	<b>M1.</b> % of CAF pers classified as active	80%	HLIS/ HR-Base	Annually	<b>L1.</b> % of tested CAF personnel who pass the FORCE Evaluation	100%	FP	Annually
	<b>M2.</b> Avg hours of sedentary time/ week in CAF pers	<84 hrs	HLIS/ HR-Base	2018 / 4 yrs	<b>L2.</b> % of CAF personnel being tested on FORCE Evaluation	80%	FP	Annually
NUTRITION	<b>M3.</b> % of CAF pers meeting RDI for fruit and vegetables	65%	HLIS	2018 / 4 yrs	<b>L3.</b> % of CAF Personnel who qualify for the incentive program	55%	FP	Annually
	<b>M4.</b> Food services/CANEX sales metric		POS	Annually	<b>L4.</b> % of CAF personnel with Waist Circumference within WHO low-risk guidelines	60%	FP	Annually
SLEEP	<b>M5.</b> Avg hours of total sleep in CAF pers	6+ hrs	HLIS/ HR-Base	2018 / 4 yrs	<b>L5.</b> Frequency at which CAF personnel report having difficulty staying awake when they want to	75% never	HLIS	2018 / 4 yrs
	<b>M6.</b> Avg rating of quality of sleep based on HR variability		HR-Base	2017 / 4 yrs	<b>L6.</b> % of CAF pers sustaining acute MSK injuries in past 12 months		HLIS/ CFHS	2018 / 4 yrs
INJ PREV	<b>M7.</b> % of leaders aware of/ implementing injury prevention practices				<b>L7.</b> % of CAF pers sustaining repetitive strain injuries in past 12 months		HLIS/ CFHS	2018 / 4 yrs

<sup>118</sup> CAF - DFIT, *Balance: The Canadian Armed Forces Physical Performance Strategy*

Annex C – Infographics of CANSOFCOM OPF2 Spousal Survey Results<sup>119</sup>



<sup>119</sup> Guérin, *CANSOFCOM Spouses' Needs Assessment Survey*, quoted in Cavicchi, Interview with OPF2 2IC



# CANADIAN SPECIAL OPERATIONS FORCES COMMAND (CANSOFCOM) FAMILIES SURVEY 2019<sup>1</sup>

## MILITARY FAMILY SERVICES (MFS) FOR CANSOFCOM SPOUSES

### SURVEY RESPONDENTS



94%

Female

57%

Aged 19-34



86%

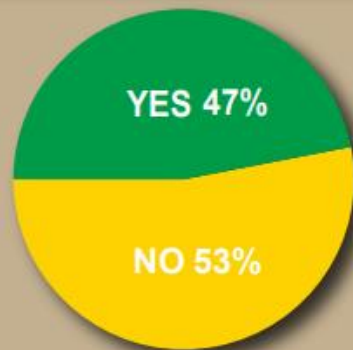
Employed

76%

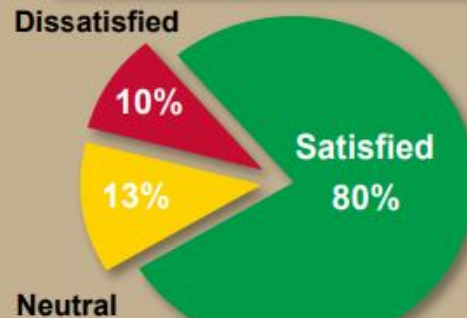
Parent



### USE MFS



### SATISFACTION WITH SERVICES



### ACCESSIBILITY OF SERVICES

MFS are easily accessible

84%

Activities and services  
are available when needed

54%

**Less than half** say they  
have enough time to  
access activities and services



### SPECIFIC SERVICES

Are aware of family events

80%

Are unaware of deployment  
support

50%



Of those aware of  
MFS newsletters (68%)  
most (79%) are  
using them

# CANADIAN SPECIAL OPERATIONS FORCES COMMAND (CANSOFCOM) FAMILIES SURVEY 2019<sup>1</sup>

## LIFESTYLE CHALLENGES OF CANSOFCOM SPOUSES

### SURVEY RESPONDENTS



94%

Female

57%

Aged 19-34



86%

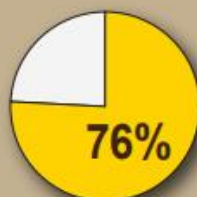
Employed

76%

Parent



### OPERATIONAL TEMPO



Partner deployed  
at least once with  
CANSOFCOM



CANSOFCOM  
partner was away  
6+ months  
in past year

### COMMUNICATION

**HALF** mentioned that  
communication during  
deployment was stressful



### REINTEGRATION

**HALF** felt that their  
CANSOFCOM partner's  
last return from deployment  
had been difficult

1 in 4

Received training on handling reintegration

### INJURY OR ILLNESS

30%



Reported that their  
CANSOFCOM partner  
had suffered an injury or  
illness requiring substantive  
recovery

### TOP CHALLENGES

- 1 Maintaining career
- 2 Deployments
- 3 Fear of partner injury or death
- 4 Periodic separations
- 5 Living away from family and friends

## BIBLIOGRAPHY

ADFSSO. *Human Performance - Special Forces Command Australia*. Sydney: Australian Defense Force, 2020.

Alder, Amy B. and Carl B. Castro. "OPTEMPO: Effects on Soldier and Unit Readiness." *Parameters* 29, no. 3 (1999): 86. <https://go.exlibris.link/NMqFB7HT>.

Armstrong, Ashley. *Email Correspondence with CANSOFCOM SOUTH Performance Dietician*, edited by Davidson, Major Pete 2022.

Armstrong, Ashley. *Interview with CANSOFCOM Performance Dietician*, edited by Davidson, Major Pete 2021.

Baer, Drake and Richard Feloni. "15 Teddy Roosevelt Quotes on Courage, Leadership, and Success.". Accessed March 10, 2022.  
<https://www.businessinsider.com/theodore-roosevelt-quotes-2016-2>.

BGen Chris Ayotte. *Briefing from COS Strategy (Army)*, edited by Davidson, Major Pete 2021.

Bostock, Sophie, Alexandra D. Crosswell, Aric A. Prather, and Andrew Steptoe. "Mindfulness on-the-Go: Effects of a Mindfulness Meditation App on Work Stress and Well-being." *Journal of Occupational Health Psychology* 24, no. 1 (2019): 1-11.

Buffet, Warren. "Warren Buffet Quotes.". Accessed November 15, 2021.  
<https://www.michaelhartzell.com/quotes-to-inspire/quotes-to-inspire/bid/65061/warren-buffett-quotes>.

Butler, Major K. and Major F. Foss. "Humans and Hardware: How Special Operations can Power Wearable Technology.". Accessed November 12, 2021.  
[https://warontherocks.com/2021/11/humans-and-hardware-how-special-operations-can-pioneer-wearable-technology/?fbclid=IwAR1m03\\_5ciR-lFC9tMg6DFob3lCKR\\_Lq0uKF3AK\\_Qt9eyKrSTNSNnpEE4o4](https://warontherocks.com/2021/11/humans-and-hardware-how-special-operations-can-pioneer-wearable-technology/?fbclid=IwAR1m03_5ciR-lFC9tMg6DFob3lCKR_Lq0uKF3AK_Qt9eyKrSTNSNnpEE4o4).

CAF - DFIT. *Balance: The Canadian Armed Forces Physical Performance Strategy*. Ottawa, ON: DFIT, 2019.

Canadian Armed Forces. "Chaplain Careers.". Accessed January 14, 2022.  
<https://forces.ca/en/career/chaplain/>.

Cavicchi, Major Jodie. *Interview with OPF2 2IC*, edited by Davidson, Major Pete 2021.

CFMWS. "CAF Connection: About Us.". Accessed February 23, 2022.  
<https://www.cafconnection.ca/Demo/About-Us.aspx>.

Chief of Defence Staff. *Duty with Honor*. Ottawa: Canadian Defence Academy, 2009.

Chief of Defence Staff. *Launch of New CAF Fitness Evaluation*. Ottawa: CAF, 2013.

Chief of Defence Staff and Deputy Minister National Defence. *Defence Team Total Health and Wellness Strategy*. Ottawa: Department of National Defence, 2022.

Collins, Jamie. *Interview with CANSOFCOM Mental Performance Specialist*, edited by Davidson, Peter 2021.

Conrad, Dr Janet. *Interview with Dr. Janet Conrad*, edited by Davidson, Major Pete 2021.

Courchesne, Captain Isabel. *Interview with CANSOFCOM HPO-I*, edited by Davidson, Major Pete 2021.

Cox, Pete J., Tom Kirk, Tom Ashmore, Kristof Willerton, Rhys Evans, Alan Smith, Andrew J. Murray, Brianna Stubbs, James West, and Stewart W. McLure. "Nutritional Ketosis Alters Fuel Preference and Thereby Endurance Performance in Athletes." *Cell Metabolism* 24, no. 2 (2016): 256-268.

CrossFit Train. "What is Fitness? Part 4.". Accessed November 23, 2021.  
<https://crossfittrain97333.com/blog-1/2019/4/3/what-is-fitness-part-4>.

Department of Defence. "Managing Stress in the Military.". Accessed November 23, 2021. <https://www.canada.ca/en/department-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/stress.html>.

Department of National Defence. "Anger Management.". Accessed November 23, 2021. <https://www.canada.ca/en/department-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/anger.html>.

Department of National Defence. "Canadian Armed Forces 101.". Accessed November 25, 2021. <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/transition-materials/defence-101/2020/03/defence-101/caf-101.html>.

Department of National Defence. "Mental Fitness and Suicide Awareness.". Accessed November 22, 2021. <https://www.canada.ca/en/department-national-defence/services/benefits-military/health-support/staying-healthy-active/social-wellness/mental-fitness.html>Promotion/Core-Programs/Mental-Fitness-and-Suicide-Awareness.aspx.



Deuster, Patricia A., Travis Lunasco, and Lauren A. Messina. "Optimizing Warfighter Lethality through Human Performance Education." *Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals* 19, no. 2 (2019): 100-104.

DND Media Relations. "JPSU Restructures Under a New Commanding Officer." Accessed November 3, 2021.

Duda, Monika K., Karen M. O'Shea, Anselm Tintinu, Wenhong Xu, Ramzi J. Khairallah, Brian R. Barrows, David J. Chess, Agnes M. Azimzadeh, William S. Harris, and Victor G. Sharov. "Fish Oil, but Not Flaxseed Oil, Decreases Inflammation and Prevents Pressure Overload-Induced Cardiac Dysfunction." *Cardiovascular Research* 81, no. 2 (2009): 319-327.  
<https://academic.oup.com/cardiovasces/article/81/2/319/286718?login=true>.

Dwight D. Eisenhower. "Dwight D. Eisenhower Quotes." Accessed February 18, 2022.  
<https://quotefancy.com/dwight-d-eisenhower-quotes>.

Engel, George L. "The Need for a New Medical Model: A Challenge for Biomedicine." *Psychodynamic Psychiatry* 40, no. 3 (2012): 377-396.  
<https://go.exlibris.link/S2GwTNf>.

Ferguson, Melanie. *Interview with Hill Family Services (HFS) Director*, edited by Davidson, Major Pete 2022.

Findlay, MG Adam. *SOCOMD Human Performance Optimisation (HPO) Network Strategy: Special Operations Training and Education Centre SOCOMD Human Performance Optimisation (HPO) Network Strategy*. n.p.: Government of Australia, 2019.

Gagnon, Patrick. *Email Conversation with PSP National HP R&D Manger*, edited by Davidson, Major Pete 2022.

Greenhalgh, Elizabeth. "Technology Development in Coalition: The Case of the First World War Tank." *International History Review* 22, no. 4 (2000): 806-836.

Guerin, Dr Eva and Dr Isabelle Richer. *CANSOFCOM Spouses' Needs Assessment Survey*. Ottawa: Department of National Defence, 2020.

Hainse, LGen J. M. M. *Mission: Ready - the Canadian Army Integrated Performance Strategy (CAIPS)*. NDHQ Ottawa: CA PD 4500-1, 2015.

Hamson-Utley, J. Jordan, Scott Martin, and Jason Walters. "Athletic Trainers' and Physical Therapists' Perceptions of the Effectiveness of Psychological Skills within

- Sport Injury Rehabilitation Programs." *Journal of Athletic Training* 43, no. 3 (2008): 258-264.
- Hanlon, Mike. "Raytheon XOS 2: Second Generation Exoskeleton." Accessed November 12, 2021. <https://newatlas.com/raytheon-significantly-progresses-exoskeleton-design/16479/>.
- Harari, Yuval Noah. *Sapiens: A Brief History of Humankind*. New York: Harper, 2015.
- Human Givens Institute. "The Alarming Hijacking of the BioPsychoSocial Model." Accessed November 17, 2021. <https://www.hgi.org.uk/news/latest-news/alarming-hijacking-biopsychosocial-model>.
- Jones, Dr Edgar. "Shell Shocked." *American Psychological Association* 43, no. 6 (June, 2012): 18. <https://www.apa.org/monitor/2012/06/shell-shocked>.
- Kamarck, Kristy N. and Robert Pedrigi. *FY2022 NDAA: Preservation of the Force and Family Program*. Washington: Congressional Research Service, 2021.
- Keegan, John. *The Mask of Command*. New York, NY: Penguin, 1988.
- King, LCol Shannon. *Interview with CANSOFCOM OPF2 Coordinator*, edited by Davidson, Major Pete 2021.
- LCol Godin. *CANSOFCOM J4 Food and Strat J4 Food Email Conversation*, edited by Mathieu, MWO Paul 2021.
- Leblanc, MWO Brian. *Interview with Special Operations Task Force Sergeant Major*, edited by Davidson, Major Pete 2021.
- Martineau, Adrian R., David A. Jolliffe, Richard L. Hooper, Lauren Greenberg, John F. Aloia, Peter Bergman, Gal Dubnov-Raz, Susanna Esposito, Davaasambuu Ganmaa, and Adit A. Ginde. "Vitamin D Supplementation to Prevent Acute Respiratory Tract Infections: Systematic Review and Meta-Analysis of Individual Participant Data." *British Medical Journal* 356, (2017): 1-42.
- Matthews, Michael D. "Human Performance Optimization." In *Headstrong*. New York: Oxford University Press, 2020.
- McNaught, LCol Blair. *Interview with CANSOFCOM Deputy Director Force Development*, edited by Davidson, Maj Pete 2021.
- McPhee, Maj Chris. *Interview with DHTC Base Services Comd*, edited by Davidson, Pete 2021.

Newlove, LCol Brian. *Optimizing Performance of Force and Family (OPF2)*. Ottawa, ON: OPF2, 2021.

Nindl, Bradley C., Kim Beals, Jeremy Witchalls, and Karl E. Friedl. "Military Human Performance Optimization and Injury Prevention: Strategies for the 21st Century Warfighter." *Journal of Science and Medicine in Sport* 20, (2017): S1-S2.  
<https://www-proquest-com.cfc.idm.oclc.org/docview/2127345263?pq-origsite=summon>.

Obesity Canada. "Epidemiology of Adult Obesity.". Accessed November 23, 2021.  
<https://obesitycanada.ca/guidelines/epidemiology/>.

Paish, Major Stephen. *Conversation with Former CMTC G1*, edited by Davidson, Major Pete 2021.

Pearce, Maj Ryan. "Applying Lessons Learned from USSOCOM Human Performance Program to the USAF Comprehensive Airman Fitness." Air Command and Staff College, 2016.

Pietrangelo, Ann. "What the Yerkes-Dodson Law Says about Stress and Performance.". Accessed November 12, 2021. <https://www.healthline.com/health/yerkes-dodson-law>.

POTFF Staff. "POTFF - about POTFF.". Accessed October 15, 2021.  
<https://www.socom.mil/POTFF/Pages/About-POTFF.aspx>.

Potter, Megan. *Interview with CANSOFCOM Mental Performance R&D Specialist*, edited by Davidson, Major Peter 2022.

Prusak, Larry. "What can'T be Measured.". Accessed November 9, 2021.  
<https://hbr.org/2010/10/what-cant-be-measured>.

Rich, John. *Conversation with USSOF Human Performance Director*, edited by Davidson, Major Pete 2017.

Richardson, Elliot. *Interview with CANSOFCOM Human Performance Delivery Manager*, edited by Davidson, Major Pete 2021.

Roberge, Major Felix. *Interview with CANSOFCOM Chaplain*, edited by Davidson, Major Pete 2021.

Rouleau, LGen Mike. *Interview with VCDS*, edited by Davidson, Pete 2021.

Rowland, Sarah. "Sarcos Robotics is Making Iron Man Suits for the Government." Utah Business. <https://www.utahbusiness.com/sarcos-robotics-is-making-iron-man-suits-for-the-government/>.

Sawicki, Gregory S., Owen N. Beck, Inseung Kang, and Aaron J. Young. "The Exoskeleton Expansion: Improving Walking and Running Economy." *Journal of NeuroEngineering and Rehabilitation* 17, no. 1 (2020): 1-9. <https://link.springer.com/article/10.1186/s12984-020-00663-9>.

Simopoulos, Artemis P. "The Importance of the Ratio of Omega-6/Omega-3 Essential Fatty Acids." *Biomedicine & Pharmacotherapy* 56, no. 8 (2002): 365-379. <https://realmofcaring.org/wp-content/uploads/2020/12/The-importance-of-the-ratio-of-omega-6-omega-3-essential-fatty-acids.pdf>.

The Canadian Press. "Military Dealing with More than 10,000 Unfilled Positions Amid Growing Pressures." *The National Post*, January 18, 2022. <https://nationalpost.com/pmnn/news-pmn/canada-news-pmn/military-dealing-with-more-than-10000-unfilled-positions-amid-growing-pressures>.

Theriault, Francois. *PSP Mental Performance Program National Framework*. Ottawa: Personnel Support Programs, 2022.

Veterans Affairs Canada. "Afghanistan Veterans." Accessed November 15, 2021. <https://www.veterans.gc.ca/eng/about-vac/news-media/facts-figures/9-0>.

*Why is it Essential to make Time for Sleep?* Podcast. Directed by Walker, Matt. Washington: NPR, 2021.

Wiggins, Colonel Walter James. "Generational Resilience in Support of the Global SOF Network." *Resilience Research and Training in the US and Canadian Armed Forces* (2015): 27.

Yeo, W. Hong and Jae-Woong Jeong. *Soft Material-Enabled Electronics for Medicine, Healthcare, and Human-Machine Interfaces*. Basel: MDPI - Multidisciplinary Digital Publishing Institute, 2020.

Yun, Tom. "Number of Canadians Reporting Religious Affiliations at all-Time Low: StatCan." Accessed November 23, 2021. <https://www.ctvnews.ca/lifestyle/number-of-canadians-reporting-religious-affiliations-at-all-time-low-statcan-1.5645420>.

Zhang, Yu, Fang Fang, Jingjing Tang, Lu Jia, Yuning Feng, Ping Xu, and Andrew Faramand. "Association between Vitamin D Supplementation and Mortality: Systematic Review and Meta-Analysis." *British Medical Journal* 366, (2019): 1-10.