THE CANADIAN CHIROPRACTIC ASSOCIATION

Written Brief to the Standing Committee on National Defence

MSK Strategy: Better care, better value

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Executive Summary

- More needs to be done to address the tremendous impacts of musculoskeletal (MSK) conditions on Canada’s men and women in uniform.

- Low back pain, neck pain, repetitive strain injuries and other MSK conditions are an occupational risk of military duty, and by far the leading reason for medical leave and going on sick parade. For example, the point prevalence of low back pain in the Canadian Forces is 40%, which is double the general population.

- In fact, the full impact of MSK conditions may be greater. Unlike professional athletes, who are quick to get the care they need to stay at peak performance, evidence shows that soldiers tend to underreport and undertreat MSK conditions.

- For the US Military, chiropractors are core members of the spinal care team at 51 US military bases, with a growing body of evidence showing better outcomes at lower cost.

- In addition to shortened military careers, and often a lifetime of chronic pain, MSK conditions are also creating direct and indirect costs for health care, absenteeism, diminished readiness, and the substantial costs of training replacement troops.

- Better care can be provided at less cost by focusing on prevention, early intervention to keep problems from getting worse (and in the process reducing prescription drug use and unnecessary diagnostic imaging), and improving access to spinal manipulation therapy because of demonstrated cost-effectiveness.

- Canadian Forces are making significant efforts, but more needs to be done to incorporate best practices of other militaries and develop a comprehensive MSK strategy to better understand and address the causes of injury, shift the culture to encourage early treatment, and reduce the current barriers to soldiers and injured veterans getting the care they need. The key is not more care, but better coordinated care.

- The CCA urges the Standing Committee on National Defence to recommend to DND the development an MSK strategy to:
  1. Develop a comprehensive understanding of the reasons for the high level of MSK conditions in the military through research and surveillance to identify key risks and knowledge gaps
  2. Evaluate and build upon the recent efforts of the CF and other militaries to identify priorities for improvement in training, equipment, readiness, and deployment to minimize risks.
  3. Recognize the value of inter-professional collaboration and ensure the CF health care team has the needed competencies, including spinal manipulation therapy, and there is a clear treatment pathway to provide evidence-informed care
  4. Ensure soldiers have proper access to care, promote needed cultural changes that discourage admitting injury, and remove the disincentives to early or preventive care.
  5. Ensuring the health care available to veterans properly funds care for MSK conditions.
Overview of chiropractic and the CCA

The Canadian Chiropractic Association (CCA) is a national, voluntary association representing Canada’s over 8,000 licensed doctors of chiropractor and the 10 provincial associations. The CCA advocates on behalf of members and their patients to advance the quality and accessibility of chiropractic care in Canada, and to improve the effectiveness and efficiency of the healthcare system.

The CCA’s vision is for chiropractors to be an integral part of every Canadian’s healthcare team by 2023. The CCA is actively engaged in efforts to promote awareness of the role of chiropractors in the assessment, diagnosis, management and prevention of musculoskeletal (MSK) conditions within a team-based model of care. As a profession, we value collaboration, excellence, innovation, integrity and leadership.

About Chiropractic

Chiropractic care is the conservative management of musculoskeletal conditions, disorders, primarily through the use of non-invasive manipulation and other manual therapies.

“...when considering effectiveness and cost together, chiropractic care for low back and neck pain is highly cost effective, (and) represents a good value in comparison to medical physician care...”

Choudry et al. (2009)

Our expertise in spinal health offers Canadians relief from lower back pain and other MSK conditions. Moreover, we offer the potential of bending the cost curve through significant productivity gains if allowed to play a bigger role in the health care delivery.

Training of Canadian chiropractors

The minimum seven years post-secondary education and training to become a chiropractor prepares them to add unique value to the spinal care team. Following undergraduate education, chiropractors must successfully complete a four-year full-time chiropractic program at an accredited college including 4,500 hours of clinical education and a 12-month clinical internship, under supervision. The program builds expertise in the assessment, diagnosis, treatment and prevention of conditions of the MSK system, as well as proficiency in other organ systems. The core academic curriculum is composed of courses in anatomy, biochemistry, physiology, neurology, embryology, principles of chiropractic, radiology, immunology, microbiology, pathology, nutrition, biomechanics and clinical sciences related to diagnosis. However, the value of chiropractic training is in determining the need for an intervention or referral through a ‘holistic’ (whole body) assessment or management of the patients.

Extent of MSK conditions in the Canadian Forces

Even though MSK conditions are significant in the general population, their impacts and prevalence are even more pronounced in modern militaries. The point prevalence of low back pain in the Canadian Forces is 40%, which is double the rate of Canadian adults (Carew, 2010). Up to 45% of the sick parade visits are MSK-related (Carew, 2010). Low back pain remains the most prevalent complaint of both acute and repetitive strain injuries, followed by lower extremity injuries (knee/ankle/hip/foot) (Payne, 2009).
As a result, the Canadian Forces Health Services (CFHS) invests significant resources in the management of MSK conditions every year. In 2009, an estimated 1/3 of the 68 000 regular force members accessed on-base physiotherapy in addition to 5 711 referred off-base. Furthermore, an additional $800 000 was invested on off-base chiropractic care.

The burden of MSK conditions is clearly reflected in health care utilization data; however, indirect costs are also important to consider. In fact, MSK conditions are considered the primary reason (32%) for non-deployability, greater than family circumstances, illness and mental health (Carew, 2010). Limiting the pool of available members for deployment creates challenges for maintaining operational readiness and international commitments to allies.

MSK conditions are also cutting military careers short. 53% of medical releases are associated with MSK conditions (Rowe & Hébert, 2010) and this high rate of MSK conditions among former military further impacts the ability of VAC to support soldiers as they transition to civilian life. In fact, more than half of VAC claims are associated with MSK injuries (Rowe & Hébert, 2010).

**Cause of injuries**

As discussed by Knapik et al. (2005), there are inherent occupational risks that come with the physical activities and military training performed by active duty soldiers. The unique nature of the military makes members prone to injury and re-occurrence, including equipment, time-constraints, asymmetric working postures, repetitious tasks, exposure to forces and continuous vibration. Moreover, unlike any other occupation, soldiers are not in a position to avoid activities that might be a source of concern for re-injury or exacerbating an existing MSK problem.

Modern military embrace and encourage a culture of physical fitness, due in part to the physical demands asked of soldiers in service. Therefore, most active duty members engage in physical activities, beyond training and operations. The 2008-2009 Health and Lifestyle Information Survey revealed that 61% of injured members did not believe that the injuries they sustained could have been prevented. However, a large proportion did attribute their injuries to a number of factors. These include, pressure to perform (12%), fatigue (6%), exceeding physical limitations (5%) and not wearing proper protective equipment (5%). Other attributed reasons include exercising without proper warm up, adequate food/fluid, rucksack march, and excessive training. Most of the risk factors identified above could be addressed with a coordinated strategy.

Besides the inherent occupational risks, members of the Forces face cultural challenges to either access care or that may result in injury. The Forces’ members are required to work and adapt to extreme circumstances, heavy equipment and uncertain environments. Therefore, they must maintain a high level of physical fitness, strength and character. Many members strive for excellence, and accordingly, push their physical limits. This drive may increase the risk of injury from excessive training and exertion. For example, 52% of acute injuries, in 2004, were due to physical training and sports, non-battle injuries (HLIS, 2004).
The high prevalence of MSK conditions in the military is not just because soldiers get injured, but also because there are barriers to both seeking and being able to access the early treatment that is so critical to avoiding conditions from becoming worse. As with mental health, the requirements of being a fighting force works against admitting weakness from injury. As well, those who seek care for initial injury or preventive care risk having repeat visits result in non-deployment, which is not just an immediate disappointment for the soldier but can also risk advancement in a military career.

Evidence shows that early treatment is key to avoiding a long term or even lifetime problem. Delay in reporting injuries or accessing appropriate care may play a role in the development of chronicity. As reported above, 53% of medical releases are attributable to MSK injuries (Rowe & Hébert, 2010), with the result that military careers are cut short, and the start of civilian life is with injury. Many times, these do not quickly resolve. Among veterans, 41% of chronic conditions are MSK related (2008-2009 Health and Lifestyle Information Survey).

**How MSK conditions are impacting the Canadian Forces**

MSK injuries are recognized as one of the top medical problems facing the Canadian Forces today. Notably, the prevalence of injury among personnel may have diminished operational readiness, compromising the ability to perform and meet requirements of the work (Ruscio et al., 2010). In 2008, 36% of surveyed force members reported that they had MSK-related injuries that were serious enough to limit normal physical activities associated with readiness to serve (HLIS, 2009).

The impact of injuries on soldiers’ health and wellbeing can have important and long term consequences. It is not uncommon for MSK injuries to become chronic, as they make up 41% of all reported chronic disease in the Canadian Forces. The pain and suffering can be significant on not only the physical ability of the member to accomplish his work, but on overall morale. MSK and chronic pain are not solely a physical experience but also extend to cognitive, social, affective, and behavioural components (Bailey et al., 2010). There is a close relationship between MSK and chronic pain and mental health as pain is both a sensory and emotional experience. Bergman et al. (2004) identified that chronic widespread pain had a major impact on both physical and mental health status. Chronic widespread pain is commonly seen in chiropractic offices and is often compounded with mental health concerns. The added morbidity of depression and anxiety with chronic pain is strongly associated with more severe pain, greater disability, and poorer health related quality of life (Bair et al., 2008) Fortunately, comprehensive interdisciplinary treatment programs, originally developed for a civilian population and in academic settings, are being successfully “translated” or utilized in the military environment (McGeary et al., 2008).

As noted above, 53% of all medical releases are due primarily to MSK conditions, some of which unnecessary. However, as injured and ill members of the Canadian Forces transition into civilian life most likely still suffering from pain and loss of function. Chronic pain can be a significant barrier to transition into civilian life, losing direct support and camaraderie from the Canadian Forces unit. Addressing the needs members in transition or veterans is crucial to ensure that they regain “normalcy” and build fulfilling lives outside the Canadian Forces.
Chronic MSK conditions, including low back pain, can also place a significant burden on the families of members of the Canadian Forces and veterans. Often forgotten, families may be asked to become caregivers to men and women suffering from chronic pain without direct access to the appropriate care needed. Coordinated efforts to support members of the Canadian Forces, veterans and families alike is desperately needed to ensure we meet our obligations to soldiers.

The impact of MSK conditions is heavily felt by members of the Canadian Forces, but also reflected in the associated costs. It has even been reported that about 30% of people under care that are deployed do so suffering from a chronic condition (Payne, 2009). Long-term impact of underlying disorder or dysfunction can lead for further suffering and disability due to equipment, terrain and operations faced during deployment. Interestingly, the second highest average annual cost due to sick leave (2004-2008) was due to MSK conditions, and leading cause of absenteeism estimated at $35 million annually (Carew, 2010). Carew (2010) estimates that at least $21 million is lost annually in wage alone.

**Barriers to access to care**

Due to increased costs, in part as a result of unnecessary diagnostic testing and specialist referrals, the Canadian Forces has organized the Expert Panel on low back pain. Similar processes have been successfully undertaken in Saskatchewan and Ontario, and reported in British Columbia. Current realities are prompting jurisdictions to investigate and identify strategies to manage costs while improving patient health outcomes. Better coordinated care is needed to address the growing burden and impact of MSK conditions. The availability of non-pharmacological alternatives to pain management may be crucial to address both physical and psychological symptoms.

Members of the Canadian Forces have access to a variety of health care providers or services either directly on-base or through extended off-base coverage. The services are generally available; however, the continuum of care may be interrupted based on capacity or availability of services. The lack of appropriate coordination between providers and services may be impacting the overall care available.

Members of the Canadian Forces have access to care once injured; however, do not have the liberty to be treated preventatively to enhance performance and maintain optimal operational readiness. Similarly to professional athletes, members of the Forces are required to excel under pressure and extreme circumstances (Jones & Knapik, 1999). However, most professional and Olympic athletes are cared for by Integrated Support Teams who place the athlete’s needs at the center of the model of care.

**Expanding CF access to team based care**

Due to barriers to access, members of the Canadian Forces may not have prompt access to all available care or best practices in the management of MSK conditions. Even though spinal manipulative therapy is recognized by numerous clinical practice guidelines including AHCPR, Bone and Joint Task Force, Saskatchewan Spinal Pathway, ISAEC Ontario, NICE British pathway as first line, non-pharmaceutical, intervention for MSK conditions, including low back pain, this form of therapy may only be accessible after a delay. As discussed in the next section, patient care strongly benefits from having access to a team of providers with a broad range of skills. Years of research now shows that rather than redundancy
from overlapping scopes, instead the team approach produces better outcomes at a lower cost. Chiropractors are the most proficient and experienced in spinal manipulation, and 94% of all spinal manipulation therapy is performed by chiropractors. Evidence from the US military and Veterans Administration has demonstrated that prompt access to chiropractic care enhances the benefits and decreases the likelihood of chronicity.

Rising pressures in terms of utilization, costs and human burden has prompted health care system across the world to develop efficient and effective models of care to provide the right care, at the right time and by the right provider. For example, for low back pain new spinal care pathways that include chiropractors have been developed and implemented in Saskatchewan and Ontario, and were the basis of recent efforts of the CF Expert Panel to develop a spinal pathway unique to the needs of the military. Ananthis (2011) reports 16% of US hospitals have chiropractic departments.

In a recent pilot project funded by the Ontario Ministry of Health and Long-Term Care, chiropractors worked alongside physicians to consult and assess low back pain patients. Those patients rated their overall satisfaction with chiropractic care at 94.2 on a 100 points scale. The primary care physicians involved in the project reported increased confidence with respect to decision-making for LBP, targeting treatment and understanding community resources based on their interactions with chiropractors. In Ontario, it was determined that the incorporation of chiropractors into team-based models of care also results in significant reductions in health system costs. An article in the Archives of Internal Medicine (Legoretta, 2004) reported the following outcomes among back pain patients with access to chiropractic care:
* 37% reduction in medical imaging costs (including MRIs)
* 41% reduction in hospitalizations
* 32% reduction in back surgeries

The experience of the US Military and Veterans Administration is that the benefits of MDs, PTs and chiropractors working together improves outcomes and reduces costs. Goertz et al. (2013) studied the impact of the addition of chiropractic care to standard medical care (including MDs and PTs), and reported that soldiers had decreased pain and improved function with no increase in overall costs. Similarly, Heymanns (2013) concluded that the addition of chiropractors to collaborative care resulted in faster recovery for patient. Numerous studies have noted a reduction in the use of opiates among low back pain patients when chiropractic care was available within a team-based model (Green, 2009; Franklin, 2009; Rhee, 2007; Vogt, 2005).

The effectiveness of spinal manipulation therapy

As discussed above, low back and neck pain in the Canadian Forces remains one of the main cause of chronic pain, disability and absenteeism, as well as driver of associated costs. Clinical practice guidelines, including, are increasingly recognizing spinal manipulation therapy as a primary early intervention and treatment. Doctors of chiropractic are extensively trained in the procedures of assessment including screening for red and yellow flags, and ruling-out pain arising from non-MSK sources. After arriving at a diagnosis and forming a plan of management, the communication of findings to the member is a critical factor in confidence of the soldier in resolving the presenting condition. Adding manual therapy like spinal manipulation to standard medical care has been shown by the evidence to be a viable, non-
invasive and non-pharmacological approach to pain management and to improve function (Goertz et al., 2013).

This form of MSK management is not new; however, many jurisdictions are now introducing conservative treatment options as innovation to their MSK strategy. Chiropractors have played an important role in providing this type of non-invasive, non-pharmaceutical and non-surgical form of treatment publicly and privately for an array of MSK conditions. Practitioners have also been recognized for their expertise in assessment and diagnosis, and have played a triage function to direct patients to the appropriate form of care. In Ontario, this has resulted in a significant reduction in wait times and quicker access to care. Cases that were not deemed surgical were steered towards conservative care; hence, decreasing overall unnecessary surgical referrals and medical imaging which are major cost drivers.

In addition, providing a viable alternative to pharmaceuticals and surgery may be very beneficial for a population such as soldiers. Besides being at increased risk for MSK injuries, the risk of developing PTSD, depression and anxiety during or post-deployment is also significant. The literature has demonstrated that comorbidities may increase the complexity of management and enhance symptoms of either condition. Furthermore, pharmaceutical options to manage MSK conditions may interfere with the treatment of PTSD, and negatively affect prognosis. Fortunately, comprehensive interdisciplinary treatment programs, including conservative care, have demonstrated better health outcomes for soldiers (Goertz et al., 2013).

Chiropractors are extensively trained in the full spectrum of MSK care, but commonly use spinal manipulation therapy or the “adjustment” to treat joint dysfunctions that produce pain and loss of function. Spinal manipulation therapy has been shown to be effective in the management of acute, subacute and chronic low back pain (Brontfort et al., 2010; Dagenais et al., 2010). The literature suggests that spinal manipulation for chronic LBP was statistically more effective in terms of pain relief and improvement in function (van Tulder et al., 2006). More so, spinal manipulation in addition to strengthening exercise has comparable effect to the prescription of NSAIDs and exercise both for short- and long-term pain relief (Brontfort et al., 2008).

Ideally, SMT, when appropriate, would be administered as a complement to other effective forms of therapies, including rehabilitation and exercise. This highlights the importance of team based care. Lawrence et al. (2008) reported that exercise in conjunction with manipulation may accelerate the recovery and improve outcomes, while decreasing the re-occurrence of injury.

Military and veterans care

MSK conditions have a major impact on most international militaries. Bergman and Miller (1998) reported that MSK conditions and injuries are responsible for 70% of medical discharges in the British Army. Between 1980 and 2005, the risk of disability related to MSK injuries has increased 7 folds and remains the fastest growing category in the US Army (Bell et al, 2008). The US Armed Forces Health Surveillance Center (2000-2006) stated that among non-deployed active duty personnel, both traumatic and injury-related MSK conditions accounted for over 1.95 million medical encounters in 2006. Lower extremities and low back were the most commonly injured areas, and most encountered during fitness training or marching exercises.
As a result, groups have sought to develop and implement innovative strategies to prevent and manage conditions appropriately. The US Department of Defense and Veterans Health Administration are such examples. Members of the military and veterans have access to team-based care, including chiropractic, on 51 military bases and in 36 Veteran Administration hospitals and clinics. The model allows for the full range of providers to work collaboratively together and refer when appropriate. Successful integration relies on such principles as patient-centred, community-based and collaborative health care delivery.

Research has demonstrated that the addition of chiropractic manipulation therapy in addition to standard medical care (including other manual therapies) had a significant advantage of decreasing pain and improving physical functioning compared to standard medical care alone (Goertz et al., 2013). Such evidence simply re-iterates the need and value of collaborative, on-site provision of care. In addition, improved outcomes would reduce outsourcing which has become a huge burden on the cost burden to the Canadian Forces (Rowe & Hébert, 2010). Fewer visits are required to achieve better results when treatment is consolidated on base with universal access to the electronic medical record for practitioners who provide a standardized quality of care.

The following table provides a comparison of the enhanced care available to the US military that is not currently available to members of the Canadian military.

<table>
<thead>
<tr>
<th>Canadian Armed Forces</th>
<th>US Military</th>
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</thead>
<tbody>
<tr>
<td>Active duty</td>
<td>Active duty, national guard and reservist</td>
</tr>
<tr>
<td>Extended health benefit, referral required</td>
<td>Integrated into healthcare team</td>
</tr>
<tr>
<td>Off-base only</td>
<td>Chiropractors working at 51 bases</td>
</tr>
<tr>
<td>No services available overseas</td>
<td>Available overseas at key rehab centres</td>
</tr>
<tr>
<td>PTs primarily responsible for NMSK conditions</td>
<td>MDs, DCs, PTs working collaboratively</td>
</tr>
<tr>
<td>Referral made by MD, PT or RN only after first line fails</td>
<td>Primary care manager makes referral for best care for soldier</td>
</tr>
<tr>
<td>20 treatments with possibility for extension</td>
<td>As needed. Determined by primary care manager</td>
</tr>
</tbody>
</table>

The enhanced care available to the US military also extends to US veterans. Veterans Health Administration (VHA) approach is deemed one of the most comprehensive model of health provision for veterans in the world. Notably, medical facilities have provided direct access to chiropractic services, in collaboration with standard medical care, since 2004. Data suggests that chiropractors are referred a variety of MSK patients; however, low back (47.7%) and neck (21.4%) complaints are the most commonly seen conditions (Lisi et al., 2009). The introduction of services has been facilitated by integrated activities including the participation in multidisciplinary rounds, in-service presentations and committee work.

Furthermore, (Lisi et al., 2010) reported the management of Operation Iraqi Freedom and Operation Enduring Freedom veterans in VHA clinics. Consulting veterans presented with complains of low back pain without and with leg pain/deficit, thoracic pain, neck pain without and with arm pain/deficit and other MSK conditions. Patients were managed by administering manual spinal manipulation/mobilization, myofascial release, education/self-management, exercise and other psychosocial interventions. Interestingly, significant pain reduction was noted, with no adverse events.
The CCA is encouraged by recent efforts from the Canadian Forces to address low back pain. However, the CCA would urge DND and VAC to consider a broader and coordinated MSK strategy, specifically related to greater access to tools/strategies to prevent and appropriately managed MSK conditions from early career until transition into civilian life.

**Toward an MSK strategy**

The Canadian Forces is already making efforts to improve the prevention and treatment of MSK conditions, and deserve to be commended for these. This is particularly challenging, in times of budget cutbacks and constraints, to develop new initiatives. However, more can and must be done for soldiers. We ask our Forces members to push their limits, often in harm’s way. We, as a nation, have a responsibility to constantly look for opportunities to reduce the impact on soldiers and their families. A more comprehensive MSK strategy would fulfil our responsibilities to soldiers, and produce better outcomes at lower cost. As well, such an MSK Strategy would properly recognize that a physically fit military is a stronger and more effective military. Maintaining operational readiness and physical performance are crucial when the stakes are so high.

The Surgeon General’s Mental Health Strategy shows the way forward and is a clear indication of strong leadership. A better MSK strategy to prevent and reduce the impact of MSK conditions would also improve individual well-being and readiness, and also save money by reducing the cost of treating injuries, direct cost impacts to preserve readiness and direct losses in training and more associated with military careers cut short, and ongoing care for the 41% of veterans who report MSK conditions (Rowe & Hébert, 2010).

Changing the impact of MSK conditions will not be easy. Similarly to mental health, MSK conditions are a health challenge directly linked to the nature of a military career. The goal of an MSK strategy is to understand the underlying causes of the high rate of MSK conditions, learn from other military examples and shift approaches to patient-centred care, and all the way from the delivery of basic training to changing the “DNA” of the military to make the prevention and early treatment of MSK conditions a priority. Soldiers are like athletes, and early or preventive care should be encouraged rather than seen as a sign of weakness.

In particular, it is not enough to wait until soldiers are injured to start addressing MSK conditions. It is counter-intuitive for the a group such as the military, considering the requirements of the job, which has among the highest rates of MSK conditions, to have less direct access to care, including chiropractic, than other public servants.

The CCA urges the Standing Committee on National Defence to recommend to DND the development an MSK strategy to:

- Develop a comprehensive understanding of the reasons for the high level of MSK conditions in the military through research and surveillance to identify key risks and knowledge gaps
- Evaluate and build upon the recent efforts of the Canadian Forces and other militaries to identify priorities for improvement in training, equipment, readiness, and deployment to minimize risks.
• Recognize the value of inter-professional collaboration and ensure the Canadian Forces health care team has the needed competencies, including spinal manipulation therapy, and there is a clear treatment pathway to provide evidence-informed care.
• Ensure soldiers have proper access to care, promote needed cultural changes that discourage admitting injury, and remove the disincentives to early or preventive care.
• Ensuring the health care available to veterans properly funds care for MSK conditions.

The Mental Health strategy was developed using effective outreach to stakeholders and the same approach should be used for the MSK strategy. The CCA would be pleased to help in whatever way we can. As well, the CCA remains committed to our offer of significant funding for a research project to demonstrate the effectiveness in terms of costs and outcomes of including chiropractic in the CF health care team.
Selected Bibliography


