



## **Providing optimal care for active youth in Canada** **Offrir des soins optimaux aux jeunes sportifs au Canada**

Laura Purcell, Sarah Campos, Michael Dickinson, Graham Thompson and  
Tatiana Jevremovic

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Article abstract

Sports are important activities for youth, with millions of children and adolescents participating in organized sports and recreational activities every year. Sports participation has many benefits but can also cause injuries, accounting for two-thirds of all injuries in Canadian adolescents and resulting in hundreds of thousands of medical visits annually. Despite the frequency of sports-related injuries in youth, many practising pediatricians are not comfortable managing these issues, citing a lack of teaching and clinical exposure during training. Many studies have found deficits in musculoskeletal (MSK) and sport and exercise medicine (SEM) training in residency programs in North America, including Canadian pediatric residency programs. To address this learning gap, Canadian pediatric residency programs should incorporate more MSK/SEM training and clinical exposure to these issues. A standardized national curriculum in MSK/SEM will help ensure that community pediatricians practicing in Canada are adequately prepared to care for active youth.

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## Providing optimal care for active youth in Canada Offrir des soins optimaux aux jeunes sportifs au Canada

Laura Purcell,<sup>1</sup> Sarah Campos,<sup>2</sup> Michael Dickinson,<sup>3</sup> Graham Thompson,<sup>4</sup> Tatiana Jevremovic<sup>5</sup>

<sup>1</sup>Department of Pediatrics, McMaster University, Ontario, Canada; <sup>2</sup>Department of Emergency Medicine, Hospital for Sick Children, Ontario, Canada; <sup>3</sup>Horizon Health Network, New Brunswick, Canada; <sup>4</sup>Departments of Pediatrics and Emergency Medicine, University of Calgary, Alberta, Canada; <sup>5</sup>Department of Family Medicine, UWO Schulich School of Medicine, Western University, Ontario, Canada

Correspondence to: Dr. Laura Purcell; email: purcellk@mcmaster.ca

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### Abstract

Sports are important activities for youth, with millions of children and adolescents participating in organized sports and recreational activities every year. Sports participation has many benefits but can also cause injuries, accounting for two-thirds of all injuries in Canadian adolescents and resulting in hundreds of thousands of medical visits annually. Despite the frequency of sport-related injuries in youth, many practising pediatricians are not comfortable managing these issues, citing lack of teaching and clinical exposure during training. Many studies have found deficits in musculoskeletal (MSK) and sport and exercise medicine (SEM) training in residency programs in North America, including Canadian pediatric residency programs. To address this learning gap, Canadian pediatric residency programs should incorporate more MSK/SEM training and clinical exposure to these issues. A standardized national curriculum in MSK/SEM will help ensure that community pediatricians practicing in Canada are adequately prepared to care for active youth.

### Résumé

Le sport est une activité importante pour les jeunes. Chaque année, des millions d'enfants et d'adolescents participent à des activités sportives et récréatives organisées. La pratique d'un sport présente de nombreux avantages, mais peut aussi provoquer des blessures. Celles-ci représentent les deux tiers de toutes les blessures chez les adolescents canadiens et entraînent des centaines de milliers de visites médicales chaque année. Malgré la fréquence des blessures liées au sport chez les jeunes, bien des pédiatres en exercice ne se sentent pas à l'aise de gérer ces problèmes, invoquant le manque d'enseignement et d'exposition clinique pendant leur formation. De nombreuses études ont révélé des lacunes dans la formation en médecine musculo-squelettique (MMS) et en médecine du sport et de l'exercice (MSE) dans les programmes de résidence en Amérique du Nord, y compris dans les programmes de résidence en pédiatrie au Canada. Pour combler ce déficit d'apprentissage, les programmes canadiens de résidence en pédiatrie devraient étoffer la formation en MMS/MSE et l'exposition clinique aux troubles de ce type. Un programme national standardisé en MMS/MSE contribuerait à préparer adéquatement les pédiatres communautaires au Canada à soigner les jeunes actifs.

### Introduction

Millions of youth participate in sports and recreational activities annually.<sup>1,2</sup> Participation has increased significantly, as has level of competition and specialization.<sup>1,2</sup> Although there are many benefits associated with sports, there is risk of injuries.<sup>1,2</sup> Two thirds of all injuries in Canadian adolescents are related to sports, resulting in approximately 185,000 emergency room visits in 2009-2010.<sup>3</sup> Musculoskeletal (MSK) complaints is the

third most common reason for presentation of adolescents to primary care practitioners.<sup>4</sup>

Despite the frequency of sport-related injuries amongst pediatric patients, there is little sport and exercise medicine (SEM) training in pediatric residency programs.<sup>5-7</sup> Not surprisingly, many practicing general pediatricians are uncomfortable with sport-related issues and would have liked more SEM training during residency.<sup>6,7</sup>

## Current landscape

Within Canada, SEM is an emerging area within pediatrics. A cross-sectional electronic survey of Canadian community pediatricians in 2020 revealed only a third of respondents were comfortable managing patients with MSK/SEM issues.<sup>8</sup> The vast majority of respondents felt that SEM training during residency was inadequate and did not prepare them for practice.<sup>8</sup> In particular, responding community pediatricians did not feel adequately prepared to provide advice regarding activity in chronic diseases and prevention of sport injuries (Figure 1).

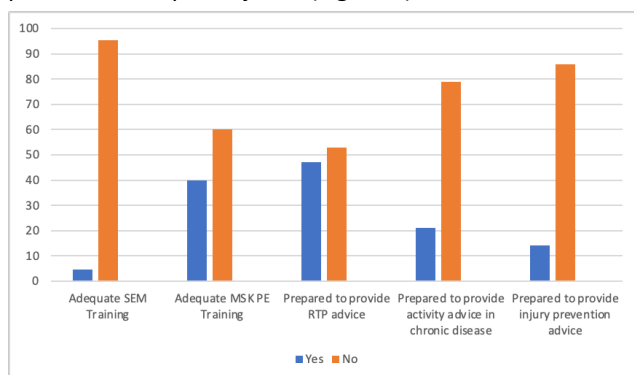


Figure 1. Canadian community pediatricians' perceptions of training in residency<sup>8</sup>

MSK=musculoskeletal; PE=physical exam; RTP=return to play; SEM=sport and exercise medicine

Another cross-sectional survey of Canadian senior pediatric residents and pediatric residency program directors in 2019 indicated similar findings.<sup>9</sup> There are 18 pediatric residency programs across Canada, with approximately 320 senior residents (post-graduate year (PGY) 3 and 4). More than half of pediatric resident respondents (55.6%) indicated no exposure to orthopedics or SEM clinical rotations during their residencies and no program reported more than 10 hours of orthopedic or SEM teaching during academic half days. The majority of residents wanted more SEM training during residency, in the form of clinical rotations, hands-on MSK physical exam (PE) workshops, and teaching during academic half days.<sup>9</sup> Current residents do not feel they are adequately prepared to care for young athletes once in practice (Figure 2). Similarly, none of the responding program directors felt that pediatric residents are prepared to care for young athletes once in practice (Figure 3). The majority of pediatric residency program directors who responded felt there should be a standardized national curriculum in pediatric SEM.<sup>9</sup>

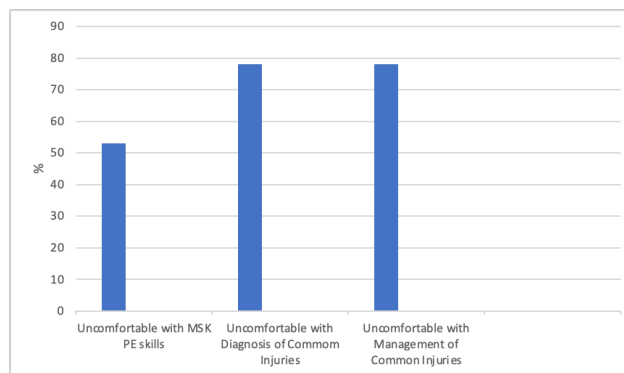
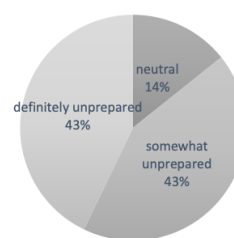


Figure 2. SEM knowledge and skill gaps identified by Canadian pediatric residents<sup>9</sup>

MSK=musculoskeletal; PE=physical exam



■ definitely prepared ■ somewhat prepared ■ neutral ■ somewhat unprepared ■ definitely unprepared

Figure 3. Program directors' perceptions of pediatric resident preparedness in pediatric SEM for practice<sup>9</sup>

Increasing MSK/SEM content in pediatric residency programs increases SEM knowledge, proficiency in MSK PE skills and comfort level with MSK/SEM issues. Several methods have been used, including PE training with standardized patients, educational videos, increasing athlete patient interactions and providing clinical rotations in SEM.<sup>10-12</sup>

## Why is pediatric SEM important?

Given the number of youth participating in sports and the resultant number of injuries, it is vital that patients have appropriate, timely access to care.<sup>1-4</sup> Sport injuries can negatively impact quality of life, sometimes requiring weeks of physiotherapy or even surgery, resulting in school absence, negatively impacting academic achievement, and can lead to youth dropping out of sports, reducing physical activity levels in adulthood.<sup>2</sup>

Low levels of physical activity strongly correlate with increased morbidity and mortality in several chronic diseases at all ages.<sup>13,14</sup> Providing appropriate anticipatory guidance for sport involvement can help youth to safely participate and may reduce injuries. Timely recognition and appropriate management of sport injuries can help minimize the negative effects.<sup>2</sup> Keeping children safely active throughout their youth and into adulthood can have

significant positive public health implications, requiring that community pediatricians be proficient in basic SEM knowledge and skills to provide appropriate care for active youth.<sup>15</sup>

## Future aspirations

SEM needs to be recognized as an important pediatric field in Canada. Standardizing a national SEM curriculum for all pediatric residency programs, incorporating a hands-on focus with clinical opportunities to interact with youth athletes in a variety of clinical settings, would ensure that all pediatric residents were taught the basic components of SEM necessary for community pediatrics practice, including appropriate MSK/joint examinations, recognition/management of common sport injuries, return to play advice and anticipatory guidance.<sup>5,10,15</sup> This curriculum could be provided by a variety of MSK experts, including adult and pediatric sport medicine physicians, orthopedic surgeons, rheumatologists, physical medicine and rehabilitation specialists, athletic therapists and physiotherapists.

Faculty development sessions would help pediatric faculty increase their skills and knowledge in pediatric SEM in order to teach future generations. For advanced training in pediatric SEM, Canadian pediatric SEM fellowship programs can be developed to train pediatric physicians capable of providing specialized care to active youth. Continued research in the area of pediatric SEM is essential to growing this field.

## Hurdles to overcome

Introducing new content to residency programs is problematic, particularly given time restrictions to complete training and concern about compromising other learning objectives. Particular difficulties in providing pediatric SEM training include lack of awareness of SEM, lack of a standardized national SEM curriculum, lack of SEM clinical opportunities, and a lack of pediatric MSK/SEM experts and resources.<sup>5,15</sup>

Canadian pediatric SEM physicians have been proactive about increasing awareness of pediatric SEM by offering clinical opportunities to learners and providing continuing medical education (CME) at Canadian Paediatric Society (CPS) conferences and Canadian Academy of Sport and Exercise Medicine (CASEM) conferences.

To help facilitate the development of a standardized national SEM curriculum in pediatric residency programs,

the Royal College of Physicians and Surgeons of Canada (RCPSC) should revise the Pediatrics Competencies and Training Experiences to include SEM topics and clinical experiences. For educators, pediatric residency programs will have to be creative and flexible in providing this training.<sup>15</sup>

To address lack of clinical opportunities and MSK/SEM experts and resources, pediatric residencies can access resources provided by SEM organizations (see resources below) to obtain lists of SEM physicians in their area, as well as CME opportunities for faculty and trainees. Collaboration between pediatric residency programs can help programs access SEM experts and resources at other sites to compliment/supplement their own.

## Conclusion

Pediatric SEM is underrecognized within Canada. The goal of incorporating SEM into pediatric residency training is not to make every pediatrician an expert in SEM, rather to ensure that all pediatricians have basic knowledge and clinical skills to care for active youth in Canada and to know when to refer patients for advanced care. In order for this to happen, Canadian pediatric residency programs should incorporate a standardized SEM curriculum.

### Resources

- Canadian Academy of Sport and Exercise Medicine: <https://casem-acmse.org/>
- SportMedBC: <https://sportmedbc.com/>
- Sport Medicine Council of Alberta: <https://www.sportmedab.ca/>
- College of Family Physicians of Canada: [https://www.cfpc.ca/SEM\\_Who\\_We\\_Are/](https://www.cfpc.ca/SEM_Who_We_Are/)
- Ontario Medical Association Sport and Exercise Medicine Section: <https://sportsandexercisemedicine.ca/>
- Association du Quebecoise des medecins du sport et l'exercice : <https://aqmse.org/>

**Conflicts of Interest:** Dr. Purcell is a Canadian Academy of Sport and Exercise Medicine (CASEM) Board member, receives royalties for co-editing textbooks, and has received honoraria for participating in an advisory panel and as a speaker. Dr. Michael Dickinson has been an expert witness, and a speaker.

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## References

1. Patel DR, Yamaski A, Brown K. Epidemiology of sports-related musculoskeletal injuries in young athletes in the United States. *Transl Pediatr* 2017;6(3):160-166. <https://doi.org/10.21037/tp.2017.04.08>
2. Brenner JS, AAP Council on sports medicine and fitness. sports specialization and intensive training in young athletes. *Pediatrics* 2016;138(3):e20162148. <https://doi.org/10.1542/peds.2016-2148>
3. Injuries in Canada: insights from the Canadian community health survey 2009-2010. <https://www150.statcan.gc.ca/n1/pub/82-624-x/2011001/article/11506-eng.htm> [Accessed on Apr 27, 2022].
4. Ziv A, Boulet JR, Slap GB. Utilization of physician offices by adolescents in the United States. *Pediatrics* 1999;104:35-41. <https://doi.org/10.1542/peds.104.1.35>.
5. Demorest RA, Bernhardt DT, Best TM, Landry GL. Pediatric residency education: Is sports medicine getting its fair share? *Pediatrics* 2005;115(1):28-33. <https://doi.org/10.1542/peds.2004-0266>
6. Freed GL, Dunham KM, Switalski KE et al. Recently trained general pediatricians: perspectives on residency training and scope of practice. *Pediatrics* 2009;123:S38-S43. <https://doi.org/10.1542/peds.2008-1578J>.
7. Thompson G, Purcell L. Sports medicine training in Canadian paediatric residency programs: are we doing enough? *Paediatr Child Health* 2007;12(4):295-299. <https://doi.org/10.1093/pch/12.4.295>
8. Purcell LK, Thompson G, Campos S, Dickinson M. Canadian community paediatricians' perspectives of sport medicine in residency and in practice. *Paediatrics & Child Health* 2021;26(S1):e84. Abstract #116. <https://doi.org/10.1093/pch/pxab061.094>
9. Purcell L, Campos S, Dickinson M, Jevremovic TJ. A winning game plan? Sport medicine training in Canadian pediatric residency programs. <https://icre.royalcollege.ca/icre-2020-visual-abstracts/>
10. Hergenroeder AC, Chorley JN, Laufman L, et al. Pediatric residents' performance of ankle and knee examinations after an educational intervention. *Pediatrics* 2001;107(4):e52. <https://doi.org/10.1542/peds.107.4.e52>
11. Comer FA, Daniel K, Cuff, S. Getting pediatric residents into the rotation. 2019 AMSSM Oral research poster presentations.
12. Lee J, Watanabe Duffy K, Jurencak R, Bisch M, Chan M. Confidence in performing pediatric musculoskeletal examinations in Canadian pediatric residents. *Paediatrics & Child Health* 2017;22(S1):e19. Abstract #49. <https://doi.org/10.1093/pch/pxx086.048>
13. Canadian kids need to move more to boost their brain health. 2018. [https://participation.cdn.prismic.io/participation%2F5e923384-b01a-4680-a353-60b45c271811\\_2018\\_participation\\_report\\_card\\_-\\_highlight\\_report\\_0.pdf](https://participation.cdn.prismic.io/participation%2F5e923384-b01a-4680-a353-60b45c271811_2018_participation_report_card_-_highlight_report_0.pdf) [Accessed on Apr 27, 2022].
14. Mutlu EK, Mutlu C, Taskiran H, Ozgen IT. Association of physical activity level with depression, anxiety, and quality of life in children with type 1 diabetes mellitus. *J Pediatr Endocrinol Metab*. 2015 Nov 1;28(11-12):1273-8. <https://doi.org/10.1515/jpem-2015-0082>
15. Demorest RA. Sports medicine and pediatric residency training: changing the paradigm. *Pediatric Annals* 2007;36(11):752-754. <https://doi.org/10.1542/peds.2004-0266>.