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Formation musculosquelettique par les physiothérapeutes : une approche innovante pour enseigner les techniques d'évaluation musculosquelettique aux étudiants en médecine

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Article abstract

Implication Statement: We developed physiotherapist-led interprofessional (IP) workshops for medical students each dedicated to a specific anatomical region. The workshops alternated between theoretical presentations from a physiotherapist about basic musculoskeletal (MSK) assessment techniques and hands-on practice in small groups with feedback from Master's-level physiotherapy students (MPT). The workshops created an optimal IP learning environment where medical students can learn MSK assessment techniques and MPTs can apply their knowledge and clinical skills. Academic institutions with physiotherapy and medical programs seeking to develop IP learning activities should foster opportunities for IP collaboration between physiotherapy and undergraduate medical education.



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Implication Statement

We developed physiotherapist-led interprofessional (IP) workshops for medical students each dedicated to a specific anatomical region. The workshops alternated between theoretical presentations from a physiotherapist about basic musculoskeletal (MSK) assessment techniques and hands-on practice in small groups with feedback from Master's-level physiotherapy students (MPT). The workshops created an optimal IP learning environment where medical students can learn MSK assessment techniques and MPTs can apply their knowledge and clinical skills. Academic institutions with physiotherapy and medical programs seeking to develop IP learning activities should foster opportunities for IP collaboration between physiotherapy and undergraduate medical education.

Énoncé des implications de la recherche

Nous avons créé, à l'intention des étudiants en médecine, des ateliers interprofessionnels (IP) dirigés par un physiothérapeute, chacun axé sur une région anatomique spécifique. Des ateliers théoriques sur les méthodes d'évaluation de base de l'appareil musculo-squelettique (MS) sont donnés en alternance avec des travaux pratiques en petits groupes, lors desquels des étudiants à la maîtrise en physiothérapie (M. Pht.) offrent une rétroaction aux participants. Les ateliers fournissent un environnement optimal pour l'apprentissage IP qui permet aux étudiants en médecine de se familiariser avec les méthodes d'évaluation de l'appareil MS, et aux étudiants M. Pht. d'appliquer leurs connaissances et leurs habiletés cliniques. Les établissements d'éducation offrant des programmes de physiothérapie et de médecine de premier cycle qui cherchent à mettre en place des activités d'apprentissage IP devraient favoriser la collaboration entre ces deux programmes.

Introduction

Medical students and physicians perceive the musculoskeletal (MSK) system to have high relative importance in the medical school curriculum; however,

each rate the formal period of MSK education as insufficient, resulting in poor knowledge and clinical confidence with assessment techniques.^{1,2} Pinney and Regan³ found that only 2.26% of medical curriculum hours were devoted to teaching MSK assessment, whereas MSK

complaints comprise up to 27.8% of primary healthcare visits. Other concerns relate to the consistency in teaching and different disciplinary views of MSK medicine, as well as how the content is delivered to students. Interprofessional (IP) approaches such as teaching by non-physicians (e.g., physiotherapists) is effective for medical students to learn anatomy and clinical skills.^{4,5} Physiotherapists (PT) have greater knowledge on the management of MSK conditions and bring value-added to MSK teaching that non-specialist teachers cannot offer. We describe the implementation of PT-led IP workshops and evaluate whether participation increased medical students' knowledge and confidence with MSK assessment techniques. This project received ethics approval by the McGill University Institutional Review Board (#A01-B02-19A).

Innovation

A PT and an educationalist developed the content of the workshops guided by the Medical Council of Canada (MCC) learning outcomes. The workshop design was presented to clinical faculty for feedback on the content. Second-year medical students were recruited from McGill University via newsletters to participate in three extracurricular workshops between January and March 2019, each dedicated to a specific anatomical region: shoulder, knee, and lower back. The workshops were each three hours and divided into a series of alternating theoretical and practical components. Foundational knowledge was presented by the PT in 15-20-minute segments. Following each theoretical segment, medical students were split into small groups for hands-on practice with each other. Master's-level physiotherapy students were assigned to each group and provided students with specific feedback to develop and modify their assessment techniques. The PT circulated between groups to provide guidance and answer questions.

Evaluation

Nine medical students participated in all three workshops. Multiple choice quizzes were developed to assess knowledge of basic assessment techniques across domains (inspection, palpation, range of motion, power, specific testing) for a specific joint. Quiz questions were developed by the PT based on MCC learning outcomes and reviewed by two physiotherapists and an educationalist for feedback. A questionnaire was adapted from Truntzer and al.⁶ to assess medical students' confidence performing a basic assessment. The quizzes and the questionnaire were

administered immediately before and after each workshop, and six months after the final workshop.

Paired sample and independent t-tests were used for analysis. Participants' knowledge scores on shoulder (S), knee (K), and lower back (LB) assessments (scored out of 10) all increased significantly from baseline to post-workshop (S: 6.7 to 8.1 ($p < .02$); K: 5.4 to 8.5 ($p < .002$); and LB: 3.8 to 7.0 ($p < .015$)). Knowledge scores remained above baseline at six-month follow-up, but the difference was not significant (S: 6.7 to 7.9 ($p < .14$); K: 5.4 to 7.0 ($p < .15$); LB: 3.8 to 5.0 ($p < .16$)). Confidence scores (out of 30) increased from 18.4 at baseline ($p < .14$) to 27.2 post-workshop ($p < .15$) and remained above baseline at 24.2 at six-month follow-up ($p < .16$).

Three months after the final workshop, a 60-minute semi-structured focus group interview was conducted with four participants to evaluate the workshops. Students highly valued the small-group IP format, the hands-on practice with feedback, and provided suggestions for future topics. See Figure 1 for an overview of the workshop design.

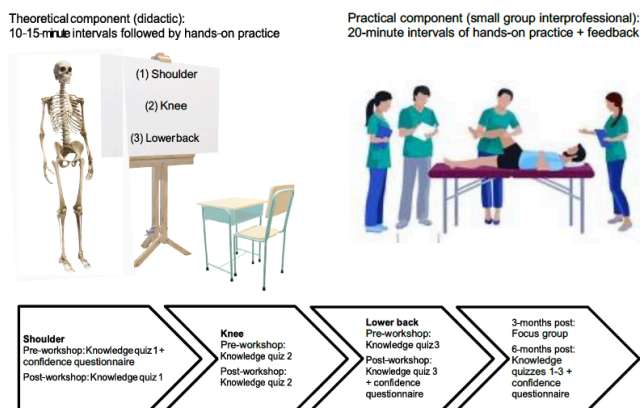


Figure 1. Overview of the workshop design (Left image from MS Word; Right image from Vecteezy.com)

Next steps

Our PT-led workshops provided an innovative IP approach for MSK education. To enhance MSK content to the undergraduate medical education curriculum, medical and physiotherapy faculty can partner in the co-design. Logistical challenges to consider include scheduling, securing suitable space, and recruiting physiotherapists to lead the workshops. Future applications could be embedded in simulation with involvement of standardized patients, as well as assess learner competency in performing an MSK examination.

Conflicts of Interest: All authors declare no conflicts of interest.

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References

1. Abou-Raya A, Abou-Raya S. The inadequacies of musculoskeletal education. *Clinical Rheumatology*. 2010;29(10):1121-6. <https://doi.org/10.1007/s10067-010-1527-y>
2. Saleh K, Messner R, Axtell S, Harris I, Mahowald ML. Development and evaluation of an integrated musculoskeletal disease course for medical students. *J. Bone Jt. Surg.* 2004;86(8):1653-8. <https://doi.org/10.2106/00004623-200408000-00008>
3. Pinney S, Regan W. Educating medical students about musculoskeletal problems: are community needs reflected in the curricula of Canadian medical schools? *JBJS*. 2001;83(9):1317-20. <https://doi.org/10.2106/00004623-200109000-00004>
4. Hoffmann DS, Dancing D, Rosenbaum M. Massage and medicine: An interprofessional approach to learning musculoskeletal anatomy and enhancing personal wellness. *Acad Med*. 2019;94(6):885-92. <https://doi.org/10.1097/ACM.0000000000002623>
5. Childs JD, Whitman JM, Sizer PS, Pugia ML, Flynn TW, Delitto A. A description of physical therapists' knowledge in managing musculoskeletal conditions. *BMC musculoskelet disord*. 2005;6(1):32. <https://doi.org/10.1186/1471-2474-6-32>
6. Truntzer J, Lynch A, Kruse D, Prislun M. Musculoskeletal education: an assessment of the clinical confidence of medical students. *Perspect Med Educ*. 2014;3(3):238-44. <https://doi.org/10.1007/s40037-014-0124-1>