

Lignes directrices pour le Diagnostic et la gestion des Commotions cérébrales pédiatriques

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Références et niveaux de preuve



Ontario Neurotrauma Foundation
Fondation ontarienne de neurotraumatologie

Ce document accompagne les *Lignes directrices pour le diagnostic et la gestion des commotions cérébrales pédiatriques, première édition francophone*.

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Niveaux de preuve

Les niveaux de preuve sont utilisés pour guider le lecteur quant au poids de chaque recommandation. Il existe plusieurs manières de déterminer les niveaux de preuve. Certains soulignent la qualité supérieure des essais cliniques randomisés. Cependant, puisque très peu d'essais cliniques randomisés ont étudié les commotions cérébrales pédiatriques, nous avons utilisé un système plus large pour classer les niveaux de preuve. Celui-ci souligne également le poids des revues systématiques ou de grandes études qui peuvent ne pas impliquer d'interventions. Dans notre système, « A » représente le niveau de preuve le plus fort. Les niveaux sont définis comme suit :

- **A** = Niveau de preuve constant, de bonne qualité et centré sur le patient (exemple : au moins un essai clinique randomisé sur un large échantillon, une méta-analyse ou une revue systématique homogène, ou une grande étude de cohorte multicentrique de haute qualité);
- **B** = Niveau de preuve non constant ou de qualité limitée et centré sur le patient (exemple : études de cohorte plus petite, études de cas ou essais cliniques ayant des limites);
- **C** = Consensus, pratiques courantes, opinions ou preuves de niveau plus faible.^{1,2}

1 http://www.essentialvidenceplus.com/product/ebm_loe.cfm?show=sort. Consulté le 8 mai 2014.

2 Ebell MH, Siwek J, Weiss BD, et al. Strength of recommendation taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *Am Fam Physician*. 2004;69(3):548-56.



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0.4	Considérer l'administration de tests neurocognitifs de référence si l'enfant/adolescent pratique un sport à haut risque—pas à titre de règle générale.	B
1.1	Retirer l'enfant/adolescent du jeu immédiatement si vous soupçonnez une commotion cérébrale.	B
1.2	Évaluer l'enfant/adolescent pour des symptômes liés à une commotion cérébrale.	B
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2.6	Donner congé de l'hôpital à l'enfant/adolescent pour observation à la maison sous certaines conditions.	B
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3.1a	Informez sur l'évolution attendue de la récupération et du retour à l'apprentissage/au jeu.	B
3.1b	Conseiller sur les risques et les complications de se blesser à nouveau, surtout en présence de symptômes persistants.	B/C
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4.1	Recommander que l'enfant/adolescent suive un plan de retour progressif à l'apprentissage.	B/C
4.2	Mettre en place un programme de retour à l'apprentissage après la disparition des symptômes aigus.	B/C
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4.5	Référer un enfant/adolescent qui a subi de multiples commotions cérébrales à un expert en commotions cérébrales liées au sport pour aider à la décision de retour au jeu et/ou de l'arrêt définitif des sports de contact.	B
5.1	Évaluer les facteurs de risque pouvant retarder le rétablissement.	B
5.2	S'assurer que l'enfant/adolescent ne prend pas de médicament qui pourrait masquer ou modifier les symptômes.	B
5.3	Évaluer, documenter et gérer les plaintes importantes et prolongées associées aux symptômes spécifiques, à l'étiologie et au temps écoulé depuis la commotion cérébrale.	B
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5.4a(ii)	Dépister les facteurs qui peuvent influencer le cycle veille-sommeil de l'enfant/adolescent.	B
5.4a(iii)	Envisager des traitements non pharmacologiques pour améliorer le sommeil.	C
5.4a(iv)	Envisager de prescrire à court terme des médicaments si le sommeil ne s'est pas amélioré.	C
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5.4b(i)	Faire l'anamnèse de tous les maux de tête.	B
5.4b(ii)	Établir le degré et la durée de l'incapacité causée par les maux de tête.	B

5.4b(iii)	Effectuer un examen neurologique et un examen tête/cou.	C
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5.4c(ii)	Surveiller les troubles cognitifs.	B
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5.4e(ii)	Diriger vers un spécialiste les enfants/adolescents qui présentent des changements au niveau de la vision.	B
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5.4g(i)	Évaluer les troubles de santé mentale et de comportement préexistants et nouveaux.	B
5.4g(ii)	Demander à l'enfant/adolescent de décrire son humeur et son état d'esprit. Questionner également les parents et/ou le responsable parental à ce sujet.	B
5.4g(iii)	Traiter les symptômes liés à des troubles de santé mentale.	B
5.4g(iv)	Envisager une référence à un spécialiste en santé mentale pédiatrique.	B
5.5	Référer, au besoin, à des services de réadaptation pour améliorer les symptômes et la mobilité.	B
5.6	Considérer un diagnostic différentiel.	C
5.7	Envisager des traitements spécialisés si les symptômes persistent.	B
5.8	Travailler avec le professionnel de la santé, le personnel de l'école et/ou l'employeur de l'enfant/adolescent en ce qui concerne les accommodements nécessaires aux tâches et horaires.	B
5.9	Évaluer et traiter tous les déficits physiques, cognitifs et neurologiques.	A/B
Annexe 1	Stratégie de recherche pour la revue systématique	

O.1 : Apprendre à reconnaître les symptômes d'une commotion cérébrale.

Niveau B

Glang A, Koester MC, Beaver S, Clay J, McLaughlin K. Online training in sports concussion for youth sports coaches. *Int J Sports Sci Coach*. 2010;5(1):1–11.

Gioia GA, Collins M, Isquith PK. Improving identification and diagnosis of mild traumatic brain injury with evidence: psychometric support for the acute concussion evaluation. *J Head Trauma Rehabil*. 2008;23(4):230–242.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery*. 2002;50(5):1032–1040.

O2 : Adopter une politique officielle qui empêche un enfant/adolescent qui peut avoir subi une commotion cérébrale de revenir au jeu le jour même de l'accident.

Niveau B

Purcell L. What are the most appropriate return-to-play guidelines for concussed child athletes? *Br J Sports Med*. 2009;43 Suppl 1:i51–i55.

Schatz P, Moser RS, Covassin T, Karpf R. Early indicators of enduring symptoms in high school athletes with multiple previous concussions. *Neurosurgery*. 2011;68(6):1562–1567.

Wiebe DJ, Collins MW, Nance ML. Identification and validation of prognostic criteria for persistence of mild traumatic brain injury-related impairment in the pediatric patient. *Pediatr Emerg Care*. 2012;28(6):498–502.

Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj*. 2009;23(11):888–898.

O.3 : S'assurer que des politiques sont en place pour accommoder un enfant/adolescent qui a subi une commotion cérébrale.

Niveau B

Bassett SS, Slater EJ. Neuropsychological function in adolescents sustaining mild closed head injury. *J Pediatr Psychol*. 1990;15(2):225–236.

Master CL, Gioia GA, Leddy JJ, Grady MF. Importance of “Return-to-Learn” in Pediatric and Adolescent Concussion. *Pediatr Ann*. 2012;41(9):1–6.

Schatz P, Moser RS, Covassin T, Karpf R. Early indicators of enduring symptoms in high school athletes with multiple previous concussions. *Neurosurgery*. 2011;68(6):1562–1567.

Wiebe DJ, Collins MW, Nance ML. Identification and validation of prognostic criteria for persistence of mild traumatic brain injury-related impairment in the pediatric patient. *Pediatr Emerg Care*. 2012;28(6):498–502.

O.4 : Considérer l'administration de tests neurocognitifs de référence si l'enfant/adolescent pratique un sport à haut risque—pas à titre de règle générale.

Niveau B

Mihalik JP, Stump JE, Collins MW, Lovell MR, Field M, Maroon JC. Posttraumatic migraine characteristics in athletes following sports-related concussion. *J Neurosurg.* 2005;102(5):850–855.

Lau BC, Collins MW, Lovell MR. Sensitivity and specificity of subacute computerized neurocognitive testing and symptom evaluation in predicting outcomes after sports-related concussion. *Am J Sports Med.* 2011;39(6):1209–1216.

1.1 : Retirer l'enfant/adolescent du jeu immédiatement si vous soupçonnez une commotion cérébrale.

Niveau B

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

McCrory P1, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med.* 2013;47(5):250-8.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139–146.

Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888–898.

1.2 : Évaluer l'enfant/adolescent pour des symptômes liés à une commotion cérébrale.

Niveau B

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

McCrea M, Kelly JP, Randolph C, et al. Standardized assessment of concussion (SAC): on-site mental status evaluation of the athlete. *J Head Trauma Rehabil.* 1998;13(2):27–35.

McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery.* 2002;50(5):1032–1040.

McCrory P1, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med.* 2013;47(5):250-8.

Piland SG, Motl RW, Guskiewicz KM, McCrea M, Ferrara MS. Structural validity of a self-report concussion-related symptom scale. *Med Sci Sport Exerc.* 2006;38(1):27–32.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Randolph C, Millis S, Barr WB, et al. Concussion Symptom Inventory: An empirically derived scale for monitoring resolution of symptoms following sport-related concussion. *Arch Clin Neuropsychol*. 2009;24(3):219–229.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Phys Sportsmed*. 2010;38(1):139-46.

1.3 : Surveiller l'évolution possible des symptômes d'une commotion cérébrale.

Niveau B

Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J. On-field predictors of neuropsychological and symptom deficit following sports-related concussion. *Clin J Sport Med*. 2003;13(4):222–229.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311–2318.

McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery*. 2002;50(5):1032–1040.

Piland SG, Motl RW, Guskiewicz KM, McCrea M, Ferrara MS. Structural validity of a self-report concussion-related symptom scale. *Med Sci Sport Exerc*. 2006;38(1):27–32.

Randolph C, Millis S, Barr WB, et al. Concussion Symptom Inventory: An empirically derived scale for monitoring resolution of symptoms following sport-related concussion. *Arch Clin Neuropsychol*. 2009;24(3):219–229.

1.4 : Menez un enfant/adolescent qui présente des symptômes de commotion cérébrale chez un professionnel de la santé.

Niveau B

Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J. On-field predictors of neuropsychological and symptom deficit following sports-related concussion. *Clin J Sport Med*. 2003;13(4):222–229.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311–2318.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Phys Sportsmed*. 2010;38(1):139-46.

Vos P. Mild traumatic brain injury. *Eur J Neurol*. 2012;19(2):191–198.

2.1 : Évaluer et traiter les déficits physiques, cognitifs et neurologiques.

Niveau A

Gioia GA, Schneider JC, Vaughan CG, Isquith PK. Which symptom assessments and approaches are uniquely appropriate for paediatric concussion? *Br J Sports Med.* 2009;43 Suppl 1:i13–i22.

Niveau B

Bassett SS, Slater EJ. Neuropsychological function in adolescents sustaining mild closed head injury. *J Pediatr Psychol.* 1990;15(2):225–236.

Blinman TA, Houseknecht E, Snyder C, Wiebe DJ, Nance ML. Postconcussive symptoms in hospitalized pediatric patients after mild traumatic brain injury. *J Pediatr Surg.* 2009;44(6):1223–1228.

Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.

Borg J, Holm L, Cassidy JD, et al. Diagnostic procedures in mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med.* 2004;(43 Suppl):61–75.

Broglio SP, Eckner JT, Surma T, Kutcher JS. Post-concussion cognitive declines and symptomatology are not related to concussion biomechanics in high school football players. *J Neurotrauma.* 2011;28(10):2061–2068.

Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J. On-field predictors of neuropsychological and symptom deficit following sports-related concussion. *Clin J Sport Med.* 2003;13(4):222–229.

Falk AC, Von WL, Soderkvist BK. The specificity of post-concussive symptoms in the pediatric population. *J Child Heal Care.* 2009;13(3):227–238.

Furman GR, Lin CC, Bellanca JL, Marchetti GF, Collins MW, Whitney SL. Comparison of the balance accelerometer measure and balance error scoring system in adolescent concussions in sports. *Am J Sports Med.* 2013;41(6):1404–1410.

Gioia GA, Collins M, Isquith PK. Improving identification and diagnosis of mild traumatic brain injury with evidence: psychometric support for the acute concussion evaluation. *J Head Trauma Rehabil.* 2008;23(4):230–242.

Grubenhoff JA, Kirkwood MW, Deakne S, Wathen J. Detailed concussion symptom analysis in a paediatric ED population. *Brain Inj.* 2011;25(10):943–949.

Grubenhoff JA, Kirkwood M, Gao D, Deakne S, Wathen J. Evaluation of the standardized assessment of concussion in a pediatric emergency department. *Pediatrics.* 2010;126(4):688–695.

Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC).* 2011.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Kontos AP, Covassin T, Elbin RJ, Parker T. Depression and neurocognitive performance after concussion among male and female high school and collegiate athletes. *Arch Phys Med Rehabil*. 2012;93(10):1751–1756.
- Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311–2318.
- McCrea M, Kelly JP, Randolph C, et al. Standardized assessment of concussion (SAC): on-site mental status evaluation of the athlete. *J Head Trauma Rehabil*. 1998;13(2):27–35.
- McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery*. 2002;50(5):1032–1040.
- Mihalik JP, Stump JE, Collins MW, Lovell MR, Field M, Maroon JC. Posttraumatic migraine characteristics in athletes following sports-related concussion. *J Neurosurg*. 2005;102(5):850–855.
- Ponsford J, Willmott C, Rothwell A, et al. Cognitive and behavioral outcome following mild traumatic head injury in children. *J Head Trauma Rehabil*. 1999;14(4):360–372.
- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123–132.
- Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med*. 2011;18(3):246–254.
- Valovich TC, Perrin DH, Gansneder BM. Repeat administration elicits a practice effect with the Balance Error Scoring System but not with the Standardized Assessment of Concussion in high school athletes. *J Athl Train*. 2003;38(1):51–56.
- Vos P. Mild traumatic brain injury. *Eur J Neurol*. 2012;19(2):191–198.
- Yeates KO, Kaizar E, Rusin J, et al. Reliable change in postconcussive symptoms and its functional consequences among children with mild traumatic brain injury. *Arch Pediatr Adolesc Med*. 2012;166(7):615–622.

2.2 : Déterminer les besoins en imagerie de type tomodensitométrie (TDM).

Niveau A

- Borg J, Holm L, Cassidy JD, et al. Diagnostic procedures in mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med*. 2004;(43 Suppl):61–75.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC)*. 2011.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Kuppermann N, Holmes JF, Davan PS, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. *Lancet*. 2009;374(9696):1160-70.
- Pickering A, Harnan S, Fitzgerald P, Pandor A, Goodacre S. Clinical decision rules for children with minor head injury: a systematic review. *Arch Dis Child*. 2011;96(5):414-21.
- Vos P. Mild traumatic brain injury. *Eur J Neurol*. 2012;19(2):191-198.

Niveau B

- Easter JS, Bakes K, Dhaliwal J, Miller M, Caruso E, Haukoos JS. Comparison of PECARN, CATCH, and CHALICE Rules for Children With Minor Head Injury: A Prospective Cohort Study. *Ann Emerg Med*. 2014 pii: S0196-0644(14)00092-4.
- Lyttle MD, Crowe L, Oakley E, Dunning J, Babi FE. Comparing CATCH, CHALICE and PECARN clinical decision rules for paediatric head injuries. *Emerg Med J*. 2012;29(10):785-94.
- Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123-132.
- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123-132.
- Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med*. 2011;18(3):246-254.

2.3 : Considérer l'admission ou l'observation prolongée si l'enfant/adolescent présente des « signaux d'alarme ».

Niveau B

- Babcock L, Byczkowski T, Wade SL, Ho M, Mookerjee S, Bazarian JJ. Predicting postconcussion syndrome after mild traumatic brain injury in children and adolescents who present to the emergency department. *JAMA Pediatr*. 2013;167(2):156-161.
- Bassett SS, Slater EJ. Neuropsychological function in adolescents sustaining mild closed head injury. *J Pediatr Psychol*. 1990;15(2):225-236.
- Borg J, Holm L, Cassidy JD, et al. Diagnostic procedures in mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med*. 2004;(43 Suppl):61-75.
- Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC)*. 2011.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311-2318.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Lyttle MD, Crowe L, Oakley E, Dunning J, Babi FE. Comparing CATCH, CHALICE and PECARN clinical decision rules for paediatric head injuries. *Emerg Med J.* 2012;29(10):785-94.
- McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery.* 2002;50(5):1032–1040.
- Ponsford J, Willmott C, Rothwell A, et al. Cognitive and behavioral outcome following mild traumatic head injury in children. *J Head Trauma Rehabil.* 1999;14(4):360–372.
- Vos P. Mild traumatic brain injury. *Eur J Neurol.* 2012;19(2):191–198.

2.4 : Traiter les maux de tête aigus.

Niveau C

2.5 : Prescrire le repos physique et cognitif.

Niveau B/C

- Brown NJ, Mannix RC, O'Brien MJ, Gostine D, Collins MW, Meehan WP 3rd. Effect of cognitive activity level on duration of post-concussion symptoms. *Pediatrics.* 2014;133(2):e299-304.
- Kontos AP, Elbin RJ, Schatz P, et al. A revised factor structure for the post-concussion symptom scale: baseline and postconcussion factors. *Am J Sports Med.* 2012;40(10):2375–2384.
- Master CL, Gioia GA, Leddy JJ, Grady MF. Importance of 'return-to-learn' in pediatric and adolescent concussion. *Pediatr Ann.* 2012;41(9):1-6.
- Moser RS, Glatts C, Schatz P. Efficacy of immediate and delayed cognitive and physical rest for treatment of sports-related concussion. *J Pediatr.* 2012;161(5):922–926.
- Purcell L. What are the most appropriate return-to-play guidelines for concussed child athletes? *Br J Sports Med.* 2009;43 Suppl 1:i51–i55.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician.* 2012;85(2):123–132.
- Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888-98.

2.6 : Donner congé de l'hôpital à l'enfant/adolescent pour observation à la maison sous certaines conditions.

Niveau B

- Adams J, Frumiento C, Shatney-Leach L, Vane DW. Mandatory admission after isolated mild closed head injury in children: is it necessary? *J Pediatr Surg.* 2001;36(1):119–121.
- Borg J, Holm L, Cassidy JD, et al. Diagnostic procedures in mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med.* 2004;(43 Suppl):61–75.
- Davis RL, Hughes M, Gubler KD, Waller PL, Rivara FP. The use of cranial CT scans in the triage of pediatric patients with mild head injury. *Pediatrics.* 1995;95(3):345–349.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Mitchell KA, Fallat ME, Raque GH, Hardwick VG, Groff DB, Nagaraj HS. Evaluation of minor head injury in children. *J Pediatr Surg.* 1994;29(7):851–854.

Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med.* 2011;18(3):246–254.

Vos P. Mild traumatic brain injury. *Eur J Neurol.* 2012;19(2):191–198.

3.1 : Fournir de l'information verbale et des documents écrits à l'enfant/adolescent et aux parents et/ou responsable parental.

Niveau A

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics.* 2001;108(6):1297–1303.

Niveau B

Gagnon I, Swaine B, Friedman D, Forget R. Exploring children's self-efficacy related to physical activity performance after a mild traumatic brain injury. *J Head Trauma Rehabil.* 2005;20(5):436–449.

Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj.* 2008;22(2):161–173.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis.* 1998;186(6):333–337.

Isaacman DJ, Purvis K, Gyuro J, Anderson Y, Smith D Standardized instructions: do they improve communication of discharge information from the emergency department? *Pediatrics.* 1992;89(6 Pt 2):1204-8.

Ponsford J, Willmott C, Rothwell A, et al. Cognitive and behavioral outcome following mild traumatic head injury in children. *J Head Trauma Rehabil.* 1999;14(4):360–372.

Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.

Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj.* 2008;22(7-8):581–588.

Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med.* 2011;18(3):246–254.

Waisman Y, Siegal N, Siegal G, Amir L, Cohen H, Mimouni M. Role of diagnosis-specific information sheets in parents' understanding of emergency department discharge instructions. *Eur J Emerg Med.* 2005;12(4):159-62.

Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888-98.

3.1a : Informer sur l'évolution attendue de la récupération et du retour à l'apprentissage/au jeu.

Niveau B

- Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.
- Carroll LJ, Cassidy JD, Peloso PM, et al. Prognosis for mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med Suppl.* 2004;[36](43):84–105.
- Ferguson RJ, Mittenberg W, Barone DF, Schneider B. Postconcussion syndrome following sports-related head injury: expectation as etiology. *Neuropsychology.* 1999;13(4):582–589.
- Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj.* 2008;22(2):161–173.
- Ganesalingam K, Yeates KO, Ginn MS, et al. Family burden and parental distress following mild traumatic brain injury in children and its relationship to post-concussive symptoms. *J Pediatr Psychol.* 2008;33(6):621–629.
- Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC).* 2011.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.
- Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis.* 1998;186(6):333–337.
- Isaacman DJ, Purvis K, Gyuro J, Anderson Y, Smith D Standardized instructions: do they improve communication of discharge information from the emergency department? *Pediatrics.* 1992;89(6 Pt 2):1204-8.
- Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics.* 2001;108(6):1297–1303.
- Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139–146.
- Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj.* 2008;22(7-8):581–588.
- Vos P. Mild traumatic brain injury. *Eur J Neurol.* 2012;19(2):191–198.
- Waisman Y, Siegal N, Siegal G, Amir L, Cohen H, Mimouni M. Role of diagnosis-specific information sheets in parents' understanding of emergency department discharge instructions. *Eur J Emerg Med.* 2005;12(4):159-62.
- Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888-98.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Zemek RL, Farion KJ, Sampson M, McGahern C. Prognosticators of persistent symptoms following pediatric concussion: a systematic review. *JAMA Pediatr.* 2013;167(3):259–65.
Zemper ED. A Two-Year Prospective Study of Cerebral Concussion in American Football. *Am J Sports Medicine* 2003;11: 157-172.

3.1b : Conseiller sur les risques et les complications de se blesser à nouveau, surtout en présence de symptômes persistants.

Niveau B

Bey T and Ostick B. Second Impact Syndrome. *West J Emerg Med.* Feb 2009; 10(1):6–10.
Eisenberg MA, Andrea J, Meehan W, Mannix R. Time interval between concussions and symptom duration. *Pediatrics.* 2013;132(1):8–17.
Gagnon I, Forget R, Sullivan SJ, Friedman D. Motor performance following a mild traumatic brain injury in children: an exploratory study. *Brain Inj.* 1998;12(10):843–853.
Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil.* 2004;19(5):391–404.
Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC).* 2011.
McCrea M, Guskiewicz K, Randolph C, et al. Effects of a symptom-free waiting period on clinical outcome and risk of reinjury after sport-related concussion. *Neurosurgery.* 2009;65(5):876–882.
McCrory PR, Berkovic SF. Second impact syndrome. *Neurology.* 1998;50(3):677–683.
Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics.* 2001;108(6):1297–1303.
Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139–146.
Saunders RL, Harbaugh RE. The Second Impact in Catastrophic Contact-Sports Head Trauma. *JAMA.* 1984;252(4):538-539.
Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj.* 2008;22(7-8):581–588.
Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888-98.
Zemper ED. Two-year prospective study of relative risk of a second cerebral concussion. *Am J Phys Med Rehabil.* 2003;82(9):653–659.

3.1c : A Conseiller sur la gestion du sommeil de façon proactive.

Niveau C

3.1d : Conseiller sur la gestion des maux de tête.

Niveau B

Meehan WP 3rd. Medical therapies for concussion. *Clin Sports Med.* 2011;30(1):115-24.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics*. 2001;108(6):1297–1303.

3.1e : Conseiller sur la gestion de la fatigue.

Niveau B

Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis*. 1998;186(6):333–337.

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics*. 2001;108(6):1297–1303.

3.1f : Conseiller sur le maintien des activités sociales.

Niveau B

Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj*. 2008;22(2):161–173.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis*. 1998;186(6):333–337.

Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE*. 2014;9(4):e94936.

Jonsson C, Andersson EE. Mild traumatic brain injury: A description of how children and youths between 16 and 18 years of age perform leisure activities after 1 year. *Dev Neurorehabil*. 2013;16(1):1-8.

Kaldoja ML, Kolk A. Social-emotional behaviour in infants and toddlers with mild traumatic brain injury. *Brain Inj*. 2012;26(7-8):1005–1013.

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics*. 2001;108(6):1297–1303.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.

3.1g : Conseiller sur l'importance d'éviter la consommation d'alcool et d'autres drogues récréatives.

Niveau B

Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj*. 2008;22(7-8):581–588.

3.1h : Conseiller sur l'importance d'éviter de conduire un véhicule moteur pendant la période de récupération.

Niveau B

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Preece MH, Horswill MS, Geffen GM. Driving after concussion: the acute effect of mild traumatic brain injury on drivers' hazard perception. *Neuropsychology*. 2010;24(4):493–503.

Preece MH, Geffen GM, Horswill MS. Return-to-driving expectations following mild traumatic brain injury. *Brain Inj*. 2013;27(1):83–91.

3.1i : Conseiller sur la surveillance générale, le suivi régulier par le médecin de famille ou un spécialiste en médecine sportive jusqu'à la disparition des symptômes, et l'orientation vers des soins spécialisés si les symptômes persistent au-delà d'un mois.

Niveau B

Babcock L, Byczkowski T, Wade SL, Ho M, Mookerjee S, Bazarian JJ. Predicting postconcussion syndrome after mild traumatic brain injury in children and adolescents who present to the emergency department. *JAMA Pediatr*. 2013;167(2):156–161.

Eisenberg MA, Andrea J, Meehan W, Mannix R. Time interval between concussions and symptom duration. *Pediatrics*. 2013;132(1):8–17.

Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC)*. 2011.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis*. 1998;186(6):333–337.

Piland SG, Motl RW, Guskiewicz KM, McCrea M, Ferrara MS. Structural validity of a self-report concussion-related symptom scale. *Med Sci Sport Exerc*. 2006;38(1):27–32.

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome after mild traumatic brain injury in children. *Pediatrics*. 2001;108(6):1297–1303.

Randolph C, Millis S, Barr WB, et al. Concussion Symptom Inventory: An empirically derived scale for monitoring resolution of symptoms following sport-related concussion. *Arch Clin Neuropsychol*. 2009;24(3):219–229.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.

Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj*. 2008;22(7-8):581–588.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med*. 2011;18(3):246–254.

Vos P. Mild traumatic brain injury. *Eur J Neurol*. 2012;19(2):191–198.

3.1j : Suivre l'information écrite et verbale fournie par le professionnel de la santé.

Niveau B

Isaacman DJ, Purvis K, Gyuro J, Anderson Y, Smith D Standardized instructions: do they improve communication of discharge information from the emergency department? *Pediatrics*. 1992;89(6 Pt 2):1204-8.

Waisman Y, Siegal N, Siegal G, Amir L, Cohen H, Mimouni M. Role of diagnosis-specific information sheets in parents' understanding of emergency department discharge instructions. *Eur J Emerg Med*. 2005;12(4):159-62.

4.1 : Recommander que l'enfant/adolescent suive un plan de retour progressif à l'apprentissage.

Niveau B/C

Brown NJ, Mannix RC, O'Brien MJ, Gostine D, Collins MW, Meehan WP 3rd. Effect of cognitive activity level on duration of post-concussion symptoms. *Pediatrics*. 2014;133(2):e299-304.

Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj*. 2008;22(2):161–173.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Majerske CW, Mihalik JP, Ren D, Collins MW, Reddy CC, Lovell MR, Wagner AK. Concussion in sports: postconcussive activity levels, symptoms, and neurocognitive performance. *J Athl Train*. 2008;43(3):265-74.

Makdissi M, Davis G, Jordan B, Patricios J, Purcell L, Putukian M. Revisiting the modifiers: how should the evaluation and management of acute concussions differ in specific groups? *Br J Sports Med*. 2013;47(5):314–320.

Purcell L. What are the most appropriate return-to-play guidelines for concussed child athletes? *Br J Sports Med*. 2009;43 Suppl 1:i51–i55.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.

4.2 : Mettre en place un programme de retour à l'apprentissage après la disparition des symptômes aigus.

Niveau B/C

- Bassett SS, Slater EJ. Neuropsychological function in adolescents sustaining mild closed head injury. *J Pediatr Psychol*. 1990;15(2):225–236.
- Brown NJ, Mannix RC, O'Brien MJ, Gostine D, Collins MW, Meehan WP 3rd. Effect of cognitive activity level on duration of post-concussion symptoms. *Pediatrics*. 2014;133(2):e299-304.
- Furman GR, Lin CC, Bellanca JL, Marchetti GF, Collins MW, Whitney SL. Comparison of the balance accelerometer measure and balance error scoring system in adolescent concussions in sports. *Am J Sports Med*. 2013;41(6):1404–1410.
- Gagnon I, Swaine B, Friedman D, Forget R. Children show decreased dynamic balance after mild traumatic brain injury. *Arch Phys Med Rehabil*. 2004;85(3):444–452.
- Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj*. 2008;22(2):161–173.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Majerske CW, Mihalik JP, Ren D, Collins MW, Reddy CC, Lovell MR, Wagner AK. Concussion in sports: postconcussive activity levels, symptoms, and neurocognitive performance. *J Athl Train*. 2008;43(3):265-74.
- Makdissi M, Davis G, Jordan B, Patricios J, Purcell L, Putukian M. Revisiting the modifiers: how should the evaluation and management of acute concussions differ in specific groups? *Br J Sports Med*. 2013;47(5):314–320.
- Master CL, Gioia GA, Leddy JJ, Grady MF. Importance of “Return-to-Learn” in Pediatric and Adolescent Concussion. *Pediatr Ann*. 2012;41(9):1–6.
- Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.
- Sandel NK, Lovell MR, Kegel NE, Collins MW, Kontos AP. The relationship of symptoms and neurocognitive performance to perceived recovery from sports-related concussion among adolescent athletes. *Appl Neuropsychol*. 2013;Child. 2(1):64–69.

4.3 : Recommander des évaluations et accommodements supplémentaires si les symptômes augmentent ou persistent.

Niveau B/C

- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.

4.4 : Mettre en place un plan de retour au jeu progressif seulement après que l'enfant/adolescent ait repris complètement, et sans symptôme, ses activités d'apprentissage.

Niveau B

- Asplund CA, McKeag DB, Olsen CH. Sport-related concussion: factors associated with prolonged return to play. *Clin J Sport Med*. 2004;14(6):339–343.
- Gagnon I, Swaine B, Friedman D, Forget R. Exploring children's self-efficacy related to physical activity performance after a mild traumatic brain injury. *J Head Trauma Rehabil*. 2005;20(5):436–449.
- Gagnon I, Swaine B, Champagne F, Lefebvre H. Perspectives of adolescents and their parents regarding service needs following a mild traumatic brain injury. *Brain Inj*. 2008;22(2):161–173.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Lovell MR, Collins MW, Iverson GL, et al. Recovery from mild concussion in high school athletes. *J Neurosurg*. 2003;98(2):296–301.
- Majerske CW, Mihalik JP, Ren D, Collins MW, Reddy CC, Lovell MR, Wagner AK. Concussion in sports: postconcussive activity levels, symptoms, and neurocognitive performance. *J Athl Train*. 2008;43(3):265–74.
- Makdissi M, Davis G, Jordan B, Patricios J, Purcell L, Putukian M. Revisiting the modifiers: how should the evaluation and management of acute concussions differ in specific groups? *Br J Sports Med*. 2013;47(5):314–320.
- Master CL, Gioia GA, Leddy JJ, Grady MF. Importance of “Return-to-Learn” in Pediatric and Adolescent Concussion. *Pediatr Ann*. 2012;41(9):1–6.
- McCrea M, Guskiewicz K, Randolph C, et al. Effects of a symptom-free waiting period on clinical outcome and risk of reinjury after sport-related concussion. *Neurosurgery*. 2009;65(5):876–882.
- McCrory P1, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med*. 2013;47(5):250–8.
- Purcell L. What are the most appropriate return-to-play guidelines for concussed child athletes? *Br J Sports Med*. 2009;43 Suppl 1:i51–i55.
- Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed*. 2010;38(1):139–146.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123–132.
- Swaine BR, Gagnon I, Champagne F, et al. Identifying the specific needs of adolescents after a mild traumatic brain injury: a service provider perspective. *Brain Inj*. 2008;22(7-8):581–588.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888-98.

4.5 : Référer un enfant/adolescent qui a subi de multiples commotions cérébrales à un expert en commotions cérébrales liées au sport pour aider à la décision de retour au jeu et/ou de l'arrêt définitif des sports de contact.

Niveau B

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Moser RS, Schatz P. Enduring effects of concussion in youth athletes. *Arch Clin Neuropsychol.* 2002;17(1):91-100.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139-146.

Schatz P, Moser RS, Covassin T, Karpf R. Early indicators of enduring symptoms in high school athletes with multiple previous concussions. *Neurosurgery.* 2011;68(6):1562-1567.

5.1 : Évaluer les facteurs de risque pouvant retarder le rétablissement.

Niveau B

Asplund CA, McKeag DB, Olsen CH. Sport-related concussion: factors associated with prolonged return to play. *Clin J Sport Med.* 2004;14(6):339-343.

Babcock L, Byczkowski T, Wade SL, Ho M, Mookerjee S, Bazarian JJ. Predicting postconcussion syndrome after mild traumatic brain injury in children and adolescents who present to the emergency department. *JAMA Pediatr.* 2013;167(2):156-161.

Babikian T, McArthur D, Asarnow RF. Predictors of 1-month and 1-year neurocognitive functioning from the UCLA longitudinal mild, uncomplicated, pediatric traumatic brain injury study. *J Int Neuropsychol Soc.* 2013;19(2):145-154.

Berz K, Divine J, Foss KB, Heyl R, Ford KR, Myer GD. Sex-specific differences in the severity of symptoms and recovery rate following sports-related concussion in young athletes. *Physician Sportsmed.* 2013;41(2):58-63.

Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97-102.

Brooks BL, McKay CD, Mrazik M, Barlow KM, Meeuwisse WH, Emery CA. Subjective, but not Objective, Lingering Effects of Multiple Past Concussions in Adolescents. *J Neurotrauma.* 2013;30(17):1469-1475.

Castile L, Collins CL, McIlvain NM, Comstock RD. The epidemiology of new versus recurrent sports concussions among high school athletes, 2005-2010. *Br J Sports Med.* 2012;46(8):603-610.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Colvin AC, Mullen J, Lovell MR, West R V, Collins MW, Groh M. The role of concussion history and gender in recovery from soccer-related concussion. *Am J Sports Med*. 2009;37(9):1699–1704.
- de Kruijk J. Prediction of post-traumatic complaints after mild traumatic brain injury: Early symptoms and biochemical markers. *J Neurol Neurosurg Psychiatry*. 2002;73(6):727–732.
- Eisenberg MA, Andrea J, Meehan W, Mannix R. Time interval between concussions and symptom duration. *Pediatrics*. 2013;132(1):8–17.
- Fay TB, Yeates KO, Taylor HG, et al. Cognitive reserve as a moderator of postconcussive symptoms in children with complicated and uncomplicated mild traumatic brain injury. *J Int Neuropsychol Soc*. 2010;16(1):94–105.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE*. 2014;9(4):e94936.
- Iverson GL, Gaetz M, Lovell MR, Collins MW. Relation between subjective foggy and neuropsychological testing following concussion. *J Int Neuropsychol Soc*. 2004;10(6):904–906.
- Kirkwood MW, Yeates KO, Randolph C, Kirk JW. The implications of symptom validity test failure for ability-based test performance in a pediatric sample. *Psychol Assess*. 2012;24(1):36–45.
- Lau B, Lovell MR, Collins MW, Pardini J. Neurocognitive and symptom predictors of recovery in high school athletes. *Clin J Sport Med*. 2009;19(3):216–221.
- Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311–2318.
- Levin HS, Hanten G, Roberson G, et al. Prediction of cognitive sequelae based on abnormal computed tomography findings in children following mild traumatic brain injury. *J Neurosurg*. 2008;Pediatrics(6):461–470.
- Makdissi M, Davis G, Jordan B, Patricios J, Purcell L, Putukian M. Revisiting the modifiers: how should the evaluation and management of acute concussions differ in specific groups? *Br J Sports Med*. 2013;47(5):314–320.
- Massagli TL, Fann JR, Burington BE, Jaffe KM, Katon WJ, Thompson RS. Psychiatric illness after mild traumatic brain injury in children. *Arch Phys Med Rehabil*. 2004;85(9):1428–1434.
- McClincy MP, Lovell MR, Pardini J, Collins MW, Spore MK. Recovery from sports concussion in high school and collegiate athletes. *Brain Inj*. 2006;20(1):33–39.
- McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery*. 2002;50(5):1032–1040.
- McCrea M, Guskiewicz K, Randolph C, Barr WB, Hammeke TA, Marshall SW, Powell MR, Woo Ahn K, Wang Y, Kelly JP. Incidence, clinical course, and predictors of prolonged recovery

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- time following sport-related concussion in high school and college athletes. *J Int Neuropsychol Soc.* 2013;19(1):22-33.
- McKinlay A, Grace R, Horwood J, Fergusson D, MacFarlane M. Adolescent psychiatric symptoms following preschool childhood mild traumatic brain injury: evidence from a birth cohort. *J Head Trauma Rehabil.* 2009;24(3):221–227.
- McKinlay A, Grace RC, Horwood LJ, Fergusson DM, MacFarlane MR. Long-term behavioural outcomes of pre-school mild traumatic brain injury. *Child Care, Heal Dev.* 2010;36(1):22–30.
- McNally KA, Bangert B, Dietrich A, et al. Injury versus noninjury factors as predictors of postconcussive symptoms following mild traumatic brain injury in children. *Neuropsychology.* 2013;27(1):1–12.
- Olsson KA, Lloyd OT, Lebrocque RM, McKinlay L, Anderson VA, Kenardy JA. Predictors of child post-concussion symptoms at 6 and 18 months following mild traumatic brain injury. *Brain Inj.* 2013;27(2):145–157.
- Pellman EJ, Lovell MR, Viano DC, Casson IR. Concussion in professional football: Recovery of NFL and high school athletes assessed by computerized neuropsychological testing - Part 12. *Neurosurgery.* 2006;58(2):263–272.
- Piland SG, Motl RW, Guskiewicz KM, McCrea M, Ferrara MS. Structural validity of a self-report concussion-related symptom scale. *Med Sci Sport Exerc.* 2006;38(1):27–32.
- Ponsford J, Willmott C, Rothwell A, et al. Cognitive and behavioral outcome following mild traumatic head injury in children. *J Head Trauma Rehabil.* 1999;14(4):360–372.
- Randolph C, Millis S, Barr WB, et al. Concussion Symptom Inventory: An empirically derived scale for monitoring resolution of symptoms following sport-related concussion. *Arch Clin Neuropsychol.* 2009;24(3):219–229.
- Sandel NK, Lovell MR, Kegel NE, Collins MW, Kontos AP. The relationship of symptoms and neurocognitive performance to perceived recovery from sports-related concussion among adolescent athletes. *Appl Neuropsychol.* 2013;Child. 2(1):64–69.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician.* 2012;85(2):123–132.
- Taylor HG, Dietrich A, Nuss K, et al. Post-concussive symptoms in children with mild traumatic brain injury. *Neuropsychology.* 2010;24(2):148–159.
- Yeates KO, Taylor HG, Rusin J, et al. Longitudinal trajectories of postconcussive symptoms in children with mild traumatic brain injuries and their relationship to acute clinical status. *Pediatrics.* 2009;123(3):735–743.
- Yeates KO, Taylor HG, Rusin J, et al. Premorbid child and family functioning as predictors of post-concussive symptoms in children with mild traumatic brain injuries. *Int J Dev Neurosci.* 2012;30(3):231–237.
- Zemek RL, Farion KJ, Sampson M, McGahern C. Prognosticators of persistent symptoms following pediatric concussion: a systematic review. *JAMA Pediatr.* 2013;167(3):259–65.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

Zuckerman SL, Lee YM, Odom MJ, Solomon GS, Forbes JA, Sills AK. Recovery from sports-related concussion: Days to return to neurocognitive baseline in adolescents versus young adults. *Surg Neurol Int.* 2012;3:130. doi:10.4103/2152-7806.102945.

5.2 : S'assurer que l'enfant/adolescent ne prend pas de médicament qui pourrait masquer ou modifier les symptômes.

Niveau B

McCrory P1, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med.* 2013;47(5):250-8.

5.3 : Évaluer, documenter et gérer les plaintes importantes et prolongées associées aux symptômes spécifiques, à l'étiologie et au temps écoulé depuis la commotion cérébrale.

Niveau B

Barlow KM, Crawford S, Stevenson A, Sandhu SS, Belanger F, Dewey D. Epidemiology of Postconcussion Syndrome in Pediatric Mild Traumatic Brain Injury. *Pediatrics.* 2010;126(2):e374–e381.

Blinman TA, Houseknecht E, Snyder C, Wiebe DJ, Nance ML. Postconcussive symptoms in hospitalized pediatric patients after mild traumatic brain injury. *J Pediatr Surg.* 2009;44(6):1223–1228.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE.* 2014;9(4):e94936.

Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139–146.

Sady MD, Vaughan CG, Gioia GA. Psychometric Characteristics of the Postconcussion Symptom Inventory in Children and Adolescents. *Arch Clin Neuropsychol.* 2014 Apr15. [Epub ahead of print]

Taylor HG, Dietrich A, Nuss K, et al. Post-concussive symptoms in children with mild traumatic brain injury. *Neuropsychology.* 2010;24(2):148–159.

Yeates KO, Taylor HG, Rusin J, et al. Premorbid child and family functioning as predictors of post-concussive symptoms in children with mild traumatic brain injuries. *Int J Dev Neurosci.* 2012;30(3):231–237.

Zemek RL, Farion KJ, Sampson M, McGahern C. Prognosticators of persistent symptoms following pediatric concussion: a systematic review. *JAMA Pediatr.* 2013;167(3):259–65.

5.4a(i) : Instaurer un programme d'hygiène du sommeil.

Niveau C

5.4a(ii) : Dépister les facteurs qui peuvent influencer le cycle veille-sommeil de l'enfant/adolescent.

Niveau B

Blinman TA, Houseknecht E, Snyder C, Wiebe DJ, Nance ML. Postconcussive symptoms in hospitalized pediatric patients after mild traumatic brain injury. *J Pediatr Surg.* 2009;44(6):1223–1228.

Kaufman Y, Tzischinsky O, Epstein R, Etzioni A, Lavie P, Pillar G. Long-term sleep disturbances in adolescents after minor head injury. *Pediatr Neurol.* 2001;24(2):129–134.

5.4a(iii) : Envisager des traitements non pharmacologiques pour améliorer le sommeil.

Niveau C

5.4a(iv) : Envisager de prescrire à court terme des médicaments si le sommeil ne s'est pas amélioré.

Niveau C

5.4a(v) : Référer l'enfant/adolescent à un spécialiste du sommeil pédiatrique si le sommeil ne s'est pas amélioré.

Niveau C

5.4b(i) : Faire l'anamnèse de tous les maux de tête.

Niveau B

Babikian T, Satz P, Zaucha K, Light R, Lewis RS, Asarnow RF. The UCLA longitudinal study of neurocognitive outcomes following mild pediatric traumatic brain injury. *J Int Neuropsychol Soc.* 2011;17(5):886–895.

Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.

Broglio SP, Eckner JT, Surma T, Kutcher JS. Post-concussion cognitive declines and symptomatology are not related to concussion biomechanics in high school football players. *J Neurotrauma.* 2011;28(10):2061–2068.

Kuczynski A, Crawford S, Bodell L, Dewey D, Barlow KM. Characteristics of post-traumatic headaches in children following mild traumatic brain injury and their response to treatment: a prospective cohort. *Dev Med Child Neurol.* 2013;55(7):636–641.

Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.

5.4b(ii) : Établir le degré et la durée de l'incapacité causée par les maux de tête.

Niveau B

Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.

Kuczynski A, Crawford S, Bodell L, Dewey D, Barlow KM. Characteristics of post-traumatic headaches in children following mild traumatic brain injury and their response to treatment: a prospective cohort. *Dev Med Child Neurol.* 2013;55(7):636–641.

Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.

5.4b(iii) : Effectuer un examen neurologique et un examen tête/cou.

Niveau C

5.4b(iv) : Envisager des traitements non pharmacologiques, complémentaires et/ou des traitements médicaux alternatifs pour les maux de tête.

Niveau C

5.4b(v) : Envisager de traiter les migraines avec des médicaments d'ordonnance.

Niveau B

Kuczynski A, Crawford S, Bodell L, Dewey D, Barlow KM. Characteristics of post-traumatic headaches in children following mild traumatic brain injury and their response to treatment: a prospective cohort. *Dev Med Child Neurol.* 2013;55(7):636–641.

5.4c(i) : Évaluer les difficultés cognitives persistantes.

Niveau B

Anderson V, Catroppa C, Morse S, Haritou F, Rosenfeld J. Outcome from mild head injury in young children: A prospective study. *J Clin Exp Neuropsychol.* 2001;23(6):705–717.

Babikian T, McArthur D, Asarnow RF. Predictors of 1-month and 1-year neurocognitive functioning from the UCLA longitudinal mild, uncomplicated, pediatric traumatic brain injury study. *J Int Neuropsychol Soc.* 2013;19(2):145–154.

Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.

Gagnon I, Swaine B, Friedman D, Forget R. Children show decreased dynamic balance after mild traumatic brain injury. *Arch Phys Med Rehabil.* 2004;85(3):444–452.

Moser RS, Schatz P, Jordan BD. Prolonged effects of concussion in high school athletes. *Neurosurgery.* 2005;57(2):300–306.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Sandel NK, Lovell MR, Kegel NE, Collins MW, Kontos AP. The relationship of symptoms and neurocognitive performance to perceived recovery from sports-related concussion among adolescent athletes. *Appl Neuropsychol*. 2013;Child. 2(1):64–69.
- Sroufe NS, Fuller DS, West BT, Singal BM, Warschausky SA, Maio RF. Postconcussive symptoms and neurocognitive function after mild traumatic brain injury in children. *Pediatrics*. 2010;125(6):e1331–e1339.
- Yeates KO, Luria J, Bartkowski H, Rusin J, Martin L, Bigler ED. Postconcussive symptoms in children with mild closed head injuries. *J Head Trauma Rehabil*. 1999;14(4):337–350.

5.4c(ii) : Surveiller les troubles cognitifs.

Niveau B

- Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg*. 2013;Pediatrics(2):97–102.
- Moser RS, Schatz P, Jordan BD. Prolonged effects of concussion in high school athletes. *Neurosurgery*. 2005;57(2):300–306.

5.4d(i) : Évaluer l'équilibre et les troubles vestibulaires.

Niveau B

- Aligene K1, Lin E. Vestibular and balance treatment of the concussed athlete. *NeuroRehabilitation*. 2013;32(3):543-53.
- Gagnon I, Forget R, Sullivan SJ, Friedman D. Motor performance following a mild traumatic brain injury in children: an exploratory study. *Brain Inj*. 1998;12(10):843–853.
- Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil*. 2004;19(5):391–404.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician*. 2012;85(2):123–132.

5.4d(ii) : Évaluer la présence de vertiges paroxystiques positionnels.

Niveau B

- Aligene K1, Lin E. Vestibular and balance treatment of the concussed athlete. *NeuroRehabilitation*. 2013;32(3):543-53.
- Gagnon I, Forget R, Sullivan SJ, Friedman D. Motor performance following a mild traumatic brain injury in children: an exploratory study. *Brain Inj*. 1998;12(10):843–853.
- Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil*. 2004;19(5):391–404.

5.4d(iii) : Référer pour une évaluation plus approfondie et un traitement si l'équilibre et/ou le système vestibulaire sont atteints.

Niveau B

Aligene K1, Lin E. Vestibular and balance treatment of the concussed athlete.

NeuroRehabilitation. 2013;32(3):543-53.

Gagnon I, Forget R, Sullivan SJ, Friedman D. Motor performance following a mild traumatic brain injury in children: an exploratory study. *Brain Inj*. 1998;12(10):843–853.

Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil*. 2004;19(5):391–404.

5.4e(i) : Évaluer la présence de troubles visuels.

Niveau B

Brosseau-Lachaine O, Gagnon I, Forget R, Faubert J. Mild traumatic brain injury induces prolonged visual processing deficits in children. *Brain Inj*. 2008;22(9):657–668.

Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil*. 2004;19(5):391–404.

5.4e(ii) : Diriger vers un spécialiste les enfants/adolescents qui présentent des changements au niveau de la vision.

Niveau B

Brosseau-Lachaine O, Gagnon I, Forget R, Faubert J. Mild traumatic brain injury induces prolonged visual processing deficits in children. *Brain Inj*. 2008;22(9):657–668.

Gagnon I, Swaine B, Friedman D, Forget R. Visuomotor response time in children with a mild traumatic brain injury. *J Head Trauma Rehabil*. 2004;19(5):391–404.

5.4f(i) : Évaluer et gérer la fatigue persistante si celle-ci constitue un symptôme important.

Niveau B

Blinman TA, Houseknecht E, Snyder C, Wiebe DJ, Nance ML. Postconcussive symptoms in hospitalized pediatric patients after mild traumatic brain injury. *J Pediatr Surg*. 2009;44(6):1223–1228.

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.

Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.

5.4g(i) : Évaluer les troubles de santé mentale et de comportement préexistants et nouveaux.

Niveau B

- Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.
- Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis.* 1998;186(6):333–337.
- Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE.* 2014;9(4):e94936.
- Kaldoja ML, Kolk A. Social-emotional behaviour in infants and toddlers with mild traumatic brain injury. *Brain Inj.* 2012;26(7-8):1005–1013.
- Massagli TL, Fann JR, Burington BE, Jaffe KM, Katon WJ, Thompson RS. Psychiatric illness after mild traumatic brain injury in children. *Arch Phys Med Rehabil.* 2004;85(9):1428–1434.
- Max JE, Schachar RJ, Landis J, Bigler ED, Wilde EA, Saunders AE, Ewing-Cobbs L, Chapman SB, Dennis M, Hanten G, Levin HS. Psychiatric disorders in children and adolescents in the first six months after mild traumatic brain injury. *J Neuropsychiatry Clin Neurosci.* 2013;25(3):187-97.
- McKinlay A, Grace R, Horwood J, Fergusson D, MacFarlane M. Adolescent psychiatric symptoms following preschool childhood mild traumatic brain injury: evidence from a birth cohort. *J Head Trauma Rehabil.* 2009;24(3):221–227.
- McKinlay A, Grace RC, Horwood LJ, Fergusson DM, MacFarlane MR. Long-term behavioural outcomes of pre-school mild traumatic brain injury. *Child Care, Heal Dev.* 2010;36(1):22–30.
- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Sabini RC, Reddy CC. Concussion management and treatment considerations in the adolescent population. *Physician Sportsmed.* 2010;38(1):139–146.
- Yeates KO, Luria J, Bartkowski H, Rusin J, Martin L, Bigler ED. Postconcussive symptoms in children with mild closed head injuries. *J Head Trauma Rehabil.* 1999;14(4):337–350.

5.4g(ii) : Demander à l'enfant/adolescent de décrire son humeur et son état d'esprit. Questionner également les parents et/ou le responsable parental à ce sujet.

Niveau B

- Barlow M, Schlabach D, Peiffer J, Cook C. Differences in change scores and the predictive validity of three commonly used measures following concussion in the middle school and high school aged population. *Int J Sports Phys Ther.* 2011;6(3):150–157.
- Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.
- Ganesalingam K, Yeates KO, Ginn MS, et al. Family burden and parental distress following mild traumatic brain injury in children and its relationship to post-concussive symptoms. *J Pediatr Psychol.* 2008;33(6):621–629.
- Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE.* 2014;9(4):e94936.
- Piland SG, Motl RW, Guskiewicz KM, McCrea M, Ferrara MS. Structural validity of a self-report concussion-related symptom scale. *Med Sci Sport Exerc.* 2006;38(1):27–32.
- Randolph C, Millis S, Barr WB, et al. Concussion Symptom Inventory: An empirically derived scale for monitoring resolution of symptoms following sport-related concussion. *Arch Clin Neuropsychol.* 2009;24(3):219–229.
- Sady MD, Vaughan CG, Gioia GA. Psychometric Characteristics of the Postconcussion Symptom Inventory in Children and Adolescents. *Arch Clin Neuropsychol.* 2014 Apr15. [Epub ahead of print]

5.4g(iii) : Traiter les symptômes liés à des troubles de santé mentale.

Niveau B

- Bonfield CM, Lam S, Lin Y, Greene S. The impact of attention deficit hyperactivity disorder on recovery from mild traumatic brain injury. *J Neurosurg.* 2013;Pediatrics(2):97–102.
- Chew E, Zafonte RD. Pharmacological management of neurobehavioral disorders following traumatic brain injury--a state-of-the-art review. *J Rehabil Res Dev.* 2009;46(6):851-79.
- Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE.* 2014;9(4):e94936.
- Silver JM, McAllister TW, Arciniegas DB. Depression and cognitive complaints following mild traumatic brain injury. *Am J Psychiatry.* 2009;166(6):653-61.

5.4g(iv) : Envisager une référence à un spécialiste en santé mentale pédiatrique.

Niveau B

Ilie G, Mann RE, Boak A, Adlaf EM, Hamilton H, et al. (2014) Suicidality, Bullying and Other Conduct and Mental Health Correlates of Traumatic Brain Injury in Adolescents. *PLoS ONE* 9(4): e94936. doi:10.1371/journal.pone.0094936

5.5 : Référer, au besoin, à des services de réadaptation pour améliorer les symptômes et la mobilité.

Niveau B

Leddy JJ, Kozlowski K, Donnelly JP, Pendergast DR, Epstein LH, Willer B. A preliminary study of subsymptom threshold exercise training for refractory post-concussion syndrome. *Clin J Sport Med.* 2010;20(1):21-7.

Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.

5.6 : Considérer un diagnostic différentiel.

Niveau C

5.7 : Envisager des traitements spécialisés si les symptômes persistent.

Niveau B

Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal.* 2008.

Jonsson C, Andersson EE. Mild traumatic brain injury: a description of how children and youths between 16 and 18 years of age perform leisure activities after 1 year. *Dev Neurorehabil.* 2013;16(1):1–8.

Kuczynski A, Crawford S, Bodell L, Dewey D, Barlow KM. Characteristics of post-traumatic headaches in children following mild traumatic brain injury and their response to treatment: a prospective cohort. *Dev Med Child Neurol.* 2013;55(7):636–641.

Vidal PG, Goodman AM, Colin A, Leddy JJ, Grady MF. Rehabilitation strategies for prolonged recovery in pediatric and adolescent concussion. *Pediatr Ann.* 2012;41(9):1–7.

5.8 : Travailler avec le professionnel de la santé, le personnel de l'école et/ou l'employeur de l'enfant/adolescent en ce qui concerne les accommodements nécessaires aux tâches et horaires.

Niveau B

Harvey AG, Bryant RA. Acute stress disorder after mild traumatic brain injury. *J Nerv Ment Dis.* 1998;186(6):333–337.

Yard EE, Comstock RD. Compliance with return to play guidelines following concussion in US high school athletes, 2005-2008. *Brain Inj.* 2009;23(11):888–898.

5.9 : Évaluer et traiter tous les déficits physiques, cognitifs et neurologiques.

Niveau B

- Bassett SS, Slater EJ. Neuropsychological function in adolescents sustaining mild closed head injury. *J Pediatr Psychol*. 1990;15(2):225–236.
- Blinman TA, Houseknecht E, Snyder C, Wiebe DJ, Nance ML. Postconcussive symptoms in hospitalized pediatric patients after mild traumatic brain injury. *J Pediatr Surg*. 2009;44(6):1223–1228.
- Borg J, Holm L, Cassidy JD, et al. Diagnostic procedures in mild traumatic brain injury: results of the WHO Collaborating Centre Task Force on Mild Traumatic Brain Injury. *J Rehabil Med*. 2004;(43 Suppl):61–75.
- Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J. On-field predictors of neuropsychological and symptom deficit following sports-related concussion. *Clin J Sport Med*. 2003;13(4):222–229.
- Furman GR, Lin CC, Bellanca JL, Marchetti GF, Collins MW, Whitney SL. Comparison of the balance accelerometer measure and balance error scoring system in adolescent concussions in sports. *Am J Sports Med*. 2013;41(6):1404–1410.
- Gioia GA, Collins M, Isquith PK. Improving identification and diagnosis of mild traumatic brain injury with evidence: psychometric support for the acute concussion evaluation. *J Head Trauma Rehabil*. 2008;23(4):230–242.
- Grubenhoff JA, Kirkwood M, Gao D, Deakyne S, Wathen J. Evaluation of the standardized assessment of concussion in a pediatric emergency department. *Pediatrics*. 2010;126(4):688–695.
- Grubenhoff JA, Kirkwood MW, Deakyne S, Wathen J. Detailed concussion symptom analysis in a paediatric ED population. *Brain Inj*. 2011;25(10):943–949.
- Guideline Summary: Care of the patient with mild traumatic brain injury. [American Association of Neuroscience Nurses] 42. *info@guideline.gov (NGC)*. 2011.
- Guidelines for mild traumatic brain injury following closed head injury. Acute/Post-acute Assessment and Management. *Clin Pract Guidel Portal*. 2008.
- Kontos AP, Covassin T, Elbin RJ, Parker T. Depression and neurocognitive performance after concussion among male and female high school and collegiate athletes. *Arch Phys Med Rehabil*. 2012;93(10):1751–1756.
- Lau BC, Kontos AP, Collins MW, Mucha A, Lovell MR. Which on-field signs/symptoms predict protracted recovery from sport-related concussion among high school football players? *Am J Sports Med*. 2011;39(11):2311–2318.
- McCrea M, Kelly JP, Randolph C, et al. Standardized assessment of concussion (SAC): on-site mental status evaluation of the athlete. *J Head Trauma Rehabil*. 1998;13(2):27–35.
- McCrea M, Kelly JP, Randolph C, Cisler R, Berger L. Immediate neurocognitive effects of concussion. *Neurosurgery*. 2002;50(5):1032–1040.

Chapter: References and Levels of Evidence
Guidelines for Diagnosing and Managing Pediatric Concussion

- Mihalik JP, Stump JE, Collins MW, Lovell MR, Field M, Maroon JC. Posttraumatic migraine characteristics in athletes following sports-related concussion. *J Neurosurg.* 2005;102(5):850–855.
- Ponsford J, Willmott C, Rothwell A, et al. Cognitive and behavioral outcome following mild traumatic head injury in children. *J Head Trauma Rehabil.* 1999;14(4):360–372.
- Rotarescu V, Ciurea AV. Quality of Life in Children after Mild Traumatic Brain Injury. *Journal of Medicine and Life* 2008, 1(3):307-22.
- Scorza KA, Raleigh MF, O'Connor FG. Current concepts in concussion: evaluation and management. *Am Fam Physician.* 2012;85(2):123–132.
- Thomas DG, Collins MW, Saladino RA, Frank V, Raab J, Zuckerbraun NS. Identifying neurocognitive deficits in adolescents following concussion. *Acad Emerg Med.* 2011;18(3):246–254.
- Valovich TC, Perrin DH, Gansneder BM. Repeat administration elicits a practice effect with the Balance Error Scoring System but not with the Standardized Assessment of Concussion in high school athletes. *J Athl Train.* 2003;38(1):51–56.
- Vos P. Mild traumatic brain injury. *Eur J Neurol.* 2012;19(2):191–198.
- Yeates KO, Kaizar E, Rusin J, et al. Reliable change in postconcussive symptoms and its functional consequences among children with mild traumatic brain injury. *Arch Pediatr Adolesc Med.* 2012;166(7):615–622.

Annexe 1 : Stratégie de recherche pour la revue systématique

Medline

- exp Brain Concussion/.
- Post-Concussion Syndrome/.
- (concuss\$ or postconcuss\$).tw.
- (commotio cerebri or post traumatic encephalopathy).tw.
- ((post commotion or post contusion or post head injury) adj2 syndrome*).tw.
- ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
- mtbi.tw.
- exp Brain Injuries/.
- ((post or persistent or unresolved or delayed) adj4 (brain or skull or head or injury)).mp.
- 8 and 9.
- or/1-7,10.
- (((severe or moderate) adj2 (head or brain or traumatic or tbi)) not (mild or minor)).ti.
- 11 not 12.
- 13 and (child* or adolescent or infan*).mp.
- 14 not (animal/ not human/).
- limit 15 to English.
- limit 27 to yr="1985 -Current".

Embase

- Brain Concussion/ or Concussion/.
- Post-Concussion Syndrome/.
- (concuss\$ or postconcuss\$).tw.
- (commotio cerebri or post traumatic encephalopathy).tw.
- ((Post commotion or post contusion or post head injury) adj2 syndrome\$).tw.
- ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
- mtbi.tw.
- exp Brain Injury/.
- ((post or persistent or unresolved or delayed) adj4 (brain or skull or head or injury)).mp.
- (((severe or moderate) adj2 (head or brain or traumatic or tbi)) not (mild or minor)).ti.
- (8 and 9) not 10.
- or/1-7,11.
- 12 and (child* or adolescent or infan*).mp.
- exp animals/ or exp invertebrate/ or animal experiment/ or animal model/ or animal tissue/ or animal cell/ or nonhuman/.
- 14 not exp human/.
- 13 not 15.
- limit 16 to English.
- limit 17 to yr="1985 -Current".

Chapter: Appendix 1: Search Strategy for Systematic Review

Guidelines for Diagnosing and Managing Pediatric Concussion

CINAHL

- (MH "Brain Concussion+" OR TX concuss* or postconcuss* OR TX commotio cerebri OR TX post traumatic encephalopathy OR post head injury N3 syndrome* or post contusion N3 syndrome* or post commotion N3 syndrome* OR TX Mild traumatic brain or TX minor traumatic brain or TX minimal traumatic brain or TX mild tbi or TX minor tbi or TX minimal tbi OR TX mtbi) AND (child* or adolescent or infan*).
- Limiters: Published Date from: 19850101-20141231;English Language.

PsycInfo

- brain concussion/.
- (concuss* or postconcuss*).tw.
- (commotio cerebri or post traumatic encephalopathy).tw.
- ((post commotion or post contusion or post head injury) adj2 syndrome*).tw.
- ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
- mtbi.tw.
- traumatic brain injury/.
- ((post or persistent or unresolved or delayed) adj4 (brain or skull or head or injury)).mp.
- 7 and 8.
- or/1-6,9.
- limit 10 to (childhood or adolescence <13 to 17 years>).
- (Infan* or newborn* or new-born* or perinat* or neonat* or baby or baby* or babies or toddler* or minors or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child or child* or children* or schoolchild* or schoolchild).mp. or school child.ti,ab. or school child*.ti,ab. or (adolescen* or juvenil* or youth* or teen* or under*age* or pubescen*).mp. or exp pediatrics/ or (pediatric* or paediatric* or peadiatric*).mp. or school.ti,ab. or school*.ti,ab. or (premat* or preterm*).mp.
- 10 and 12.
- 11 or 13.
- limit 14 to English language.
- limit 15 to yr="1985 -Current".

SportDiscus

- (DE "BRAIN -- Concussion" OR DE "POSTCONCUSSION syndrome").
- Limiters: Published Date: 19850101-20141231; Language: English; Publication Type: Journal Article, Serial publication.

TRIP

- ("m* traumatic brain injury").
- (concussion).
- (pediatric* or paediatric* or child* or adolesc*) from:1985.
- Search in full document.
- Guidelines selected.

Chapter: **Appendix 1: Search Strategy for Systematic Review**
Guidelines for Diagnosing and Managing Pediatric Concussion

CENTRAL

- (concuss\$ or postconcuss\$).tw.
- (commotio cerebri or post traumatic encephalopathy).tw.
- ((post commotion or post contusion or post head injury) adj2 syndrome*).tw.
- mtbi.tw.
- or/1-4.
- (Infan* or newborn* or new-born* or perinat* or neonat* or baby or baby* or babies or toddler* or minors or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child or child* or children* or schoolchild* or schoolchild).mp. or school child.ti,ab. or school child*.ti,ab. or (adolescen* or juvenil* or youth* or teen* or under*age* or pubescen*).mp. or exp pediatrics/ or (pediatric* or paediatric* or peadiatric*).mp. or school.ti,ab. or school*.ti,ab. or (prematuro* or preterm*).mp.
- 5 and 6.
- limit 7 to yr="1985 -Current".
- (three non-English records were removed in Reference Manager).