**Table S1. Class of Evidence for Therapeutic Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Methodological Principle** | **Kadanka**  **(2002, 2011)** | **Sampath**  **(2000)** | **Yoshimatsu**  **(2001)** |
| **Study design** |  |  |  |
| Randomized controlled trial | ✓ |  |  |
| Prospective cohort study |  | ✓ |  |
| Retrospective cohort study |  |  | ✓ |
| Case-control |  |  |  |
| Case-series |  |  |  |
| Random sequence generation\* | ✓ |  |  |
| Statement of concealed allocation\* | ✓ |  |  |
| Intention to treat\* |  |  |  |
| Independent or blind assessment | ✓ | ✓ |  |
| Co-interventions applied equally | ✓ | ✓ | ✓ |
| Complete follow-up of >80% | ✓† |  |  |
| Adequate sample size |  |  |  |
| Controlling for possible confounding‡ |  |  |  |
| **Evidence Level** | II | III | III |

\*Applies only to randomized controlled trials

† Achieved for 6, 12, 24 month follow-up; not achieved for 36 and 120 month follow-up.

‡Groups must be comparable on baseline characteristics or evidence of control for confounding presented

*Blank cells indicate that the criterion was either not met or that it could not be determined*

**Table S2. Class of Evidence for Prognostic Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Methodological Principle** | | **Bednarik**  **(2011)** | **Katoh**  **(1995)** |
| **Study design** | |  |  |
| Prospective cohort study | |  |  |
| Retrospective cohort study | | ✓ | ✓ |
| Case-control | |  |  |
| Case-series | |  |  |
| Patients at similar point in the course of their disease or treatment | | ✓ |  |
| Patients followed long enough for outcomes to occur | | ✓ | ✓ |
| Complete follow-up of >80% |  |  |  |
| Controlling for extraneous prognostic factors\* | |  |  |
| **Evidence Level** | | III | III |

\*Groups must be comparable on baseline characteristics or evidence of control for confounding presented

*Blank cells indicate that the criterion was either not met or that it could not be determined*

**Table S3. Excluded studies after full-text review**

|  |  |  |
| --- | --- | --- |
| **Author** | **Year** | **Reason for Exclusion** |
| **Key Questions 1,2:** |  |  |
| Arnasson O, Carlsson CA, Pellettieri L[1](#_ENREF_1) | 1987 | <10 patients in nonoperative group |
| Fessler RG, Steck JC, Giovanini MA[2](#_ENREF_2) | 1998 | Historical control |
| Fouyas, Statham[3](#_ENREF_3) | 2002 | Review |
| Iizuka H, Nakagawa Y, Shimegi A, et al[4](#_ENREF_4) | 2005 | No comparison |
| Lee TT, Green BA, Gromelski EB[5](#_ENREF_5) | 1998 | No comparison |
| Lin EL, Lieu V, Halevi L, et al[6](#_ENREF_6) | 2006 | No myelopathy |
| Matsumoto M, Chiba K, Ishikawa M, et al[7](#_ENREF_7) | 2001 | No comparison |
| Persson, Carlsson[8](#_ENREF_8" \o "Persson, 1997 #140) | 1997 | No myelopathy - radicular pain |
| Persson, Moritz[9](#_ENREF_9) | 1997 | No myelopathy - radicular pain |
| Phillips DG[10](#_ENREF_10) | 1973 | Historical control |
| Saunders RL, Pikus HJ, Ball P[11](#_ENREF_11) | 1998 | No comparison |
| Hacker, RJ[12](#_ENREF_12) | 2005 | No comparison |
| **Key Question 3:** |  |  |
| Allen, CR, Kang, JD[13](#_ENREF_13) | 2002 | No myelopathy |
| Banerjee, R, Palumbo, MA, Fadale, PD[14](#_ENREF_14) | 2004 | No myelopathy or comparison |
| Chang, SKY, Tominaga, GT, Wong, JH[15](#_ENREF_15) | 2006 | Risk factors and developing a cervical spine injury |
| Murphy, DR, Coulis, CM, Gerrard, JK[16](#_ENREF_16) | 2009 | Review |
| Regenbogen, VS, Rogers, LF, Atlas, SW[17](#_ENREF_17) | 1986 | Does not follow CSM patients over time |
| Torg, JS, Naranja, RJ, Pavlov, PH[18](#_ENREF_18) | 1996 | No myelopathy |
| Torg, JS, Ramsey-Emrhein, JA[19](#_ENREF_19) | 1997 | No myelopathy or comparison |
| Triantafillou, KM, Lauerman, W, Kalantar, SB[20](#_ENREF_20) | 2012 | Review - narrowing of spinal cord |

**References of excluded studies:**

**1.** Arnasson O, Carlsson CA, Pellettieri L. Surgical and conservative treatment of cervical spondylotic radiculopathy and myelopathy. *Acta Neurochir (Wien).* 1987;84(1-2):48-53.

**2.** Fessler RG, Steck JC, Giovanini MA. Anterior cervical corpectomy for cervical spondylotic myelopathy. *Neurosurgery.* Aug 1998;43(2):257-265; discussion 265-257.

**3.** Fouyas IP, Statham PF, Sandercock PA. Cochrane review on the role of surgery in cervical spondylotic radiculomyelopathy. *Spine (Phila Pa 1976).* Apr 1 2002;27(7):736-747.

**4.** Iizuka H, Nakagawa Y, Shimegi A, et al. Clinical results after cervical laminoplasty: differences due to the duration of wearing a cervical collar. *J Spinal Disord Tech.* Dec 2005;18(6):489-491.

**5.** Lee TT, Green BA, Gromelski EB. Safety and stability of open-door cervical expansive laminoplasty. *J Spinal Disord.* Feb 1998;11(1):12-15.

**6.** Lin EL, Lieu V, Halevi L, Shamie AN, Wang JC. Cervical epidural steroid injections for symptomatic disc herniations. *J Spinal Disord Tech.* May 2006;19(3):183-186.

**7.** Matsumoto M, Chiba K, Ishikawa M, Maruiwa H, Fujimura Y, Toyama Y. Relationships between outcomes of conservative treatment and magnetic resonance imaging findings in patients with mild cervical myelopathy caused by soft disc herniations. *Spine (Phila Pa 1976).* Jul 15 2001;26(14):1592-1598.

**8.** Persson LC, Carlsson CA, Carlsson JY. Long-lasting cervical radicular pain managed with surgery, physiotherapy, or a cervical collar. A prospective, randomized study. *Spine (Phila Pa 1976).* Apr 1 1997;22(7):751-758.

**9.** Persson LC, Moritz U, Brandt L, Carlsson CA. Cervical radiculopathy: pain, muscle weakness and sensory loss in patients with cervical radiculopathy treated with surgery, physiotherapy or cervical collar. A prospective, controlled study. *Eur Spine J.* 1997;6(4):256-266.

**10.** Phillips DG. Surgical treatment of myelopathy with cervical spondylosis. *J Neurol Neurosurg Psychiatry.* Oct 1973;36(5):879-884.

**11.** Saunders RL, Pikus HJ, Ball P. Four-level cervical corpectomy. *Spine (Phila Pa 1976).* Nov 15 1998;23(22):2455-2461.

**12.** Hacker RJ. Cervical disc arthroplasty: a controlled randomized prospective study with intermediate follow-up results. Invited submission from the joint section meeting on disorders of the spine and peripheral nerves, March 2005. *J Neurosurg Spine.* Dec 2005;3(6):424-428.

**13.** Allen CR, Kang JD. Transient quadriparesis in the athlete. *Clin Sports Med.* Jan 2002;21(1):15-27.

**14.** Banerjee R, Palumbo MA, Fadale PD. Catastrophic cervical spine injuries in the collision sport athlete, part 1: epidemiology, functional anatomy, and diagnosis. *Am J Sports Med.* Jun 2004;32(4):1077-1087.

**15.** Chang SK, Tominaga GT, Wong JH, Weldon EJ, Kaan KT. Risk factors for water sports-related cervical spine injuries. *J Trauma.* May 2006;60(5):1041-1046.

**16.** Murphy DR, Coulis CM, Gerrard JK. Cervical spondylosis with spinal cord encroachment: should preventive surgery be recommended? *Chiropr Osteopat.* 2009;17:8.

**17.** Regenbogen VS, Rogers LF, Atlas SW, Kim KS. Cervical spinal cord injuries in patients with cervical spondylosis. *AJR Am J Roentgenol.* Feb 1986;146(2):277-284.

**18.** Torg JS, Naranja RJ, Jr., Pavlov H, Galinat BJ, Warren R, Stine RA. The relationship of developmental narrowing of the cervical spinal canal to reversible and irreversible injury of the cervical spinal cord in football players. *J Bone Joint Surg Am.* Sep 1996;78(9):1308-1314.

**19.** Torg JS, Ramsey-Emrhein JA. Management guidelines for participation in collision activities with congenital, developmental, or postinjury lesions involving the cervical spine. *Clin J Sport Med.* Oct 1997;7(4):273-291.

**20.** Triantafillou KM, Lauerman W, Kalantar SB. Degenerative disease of the cervical spine and its relationship to athletes. *Clin Sports Med.* Jul 2012;31(3):509-520.