

Ryan Kohler – concussion and second impact syndrome literature search.

Please find the results of your requested literature search on concussion and second impact syndrome .

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[The pathophysiology of concussion.](#)

By Signoretti S, Lazzarino G, Tavazzi B, Vagnozzi R, PM & R: The Journal Of Injury, Function, And Rehabilitation [PM R], ISSN: 1934-1563, 2011 Oct; Vol. 3 (10 Suppl 2), pp. S359-68; PMID: 22035678;

Concussion is defined as a biomechanically induced brain injury characterized by the absence of gross anatomic lesions. Early and late clinical symptoms, including impairments of memory and attention, headache, and alteration of mental status, are the result of neuronal dysfunction mostly caused by functional rather than structural abnormalities. The mechanical insult initiates a complex cascade of metabolic events leading to perturbation of delicate neuronal homeostatic balances. Starting from neurotoxicity, energetic metabolism disturbance caused by the initial mitochondrial dysfunction seems to be the main biochemical explanation for most postconcussive signs and symptoms. Furthermore, concussed cells enter a peculiar state of vulnerability, and if a second concussion is sustained while they are in this state, they may be irreversibly damaged by the occurrence of swelling. This condition of concussion-induced brain vulnerability is the basic pathophysiology of the second impact syndrome. N-acetylaspartate, a brain-specific compound representative of neuronal metabolic wellness, is proving a valid surrogate marker of the post-traumatic biochemical damage, and its utility in monitoring the recovery of the aforementioned "functional" disturbance as a concussion marker is emerging, because it is easily detectable through proton magnetic resonance spectroscopy. (Copyright © 2011 American Academy of Physical Medicine and Rehabilitation. Published by Elsevier Inc. All rights reserved.)

Database: MEDLINE with Full Text

[Second impact syndrome: concussion and second injury brain complications.](#)

By Wetjen NM, Pichelmann MA, Atkinson JL, Journal Of The American College Of Surgeons [J Am Coll Surg], ISSN: 1879-1190, 2010 Oct; Vol. 211 (4), pp. 553-7; PMID: 20822744

Subjects: Brain Concussion complications; Brain Concussion physiopathology; Brain Edema physiopathology; Adolescent: 13-18 years; All Child: 0-18 years; Male

Database: MEDLINE with Full Text

[The second impact syndrome.](#)

By Byard RW, Vink R, Forensic Science, Medicine, And Pathology [Forensic Sci Med Pathol], ISSN: 1547-769X, 2009; Vol. 5 (1), pp. 36-8; PMID: 19148785

Database: MEDLINE with Full Text

[Concussions in adolescent athletes.](#)

By Valentine V, Curl WW, Instructional Course Lectures [Instr Course Lect], ISSN: 0065-6895, 2006; Vol. 55, pp. 703-9; PMID: 16958503; A concussion is defined as a complex pathophysiologic process affecting the brain that is induced by traumatic biomechanical forces. Concussions are caused by a direct or indirect blow that leads to a graded set of syndromes characterized by functional rather than structural disturbances to the brain. Concussions are characterized by a wide variety of presenting symptoms, including loss of consciousness, amnesia, confusion, headache, and nausea. Concussions occur in patients participating in all levels of athletic activities, with most occurring in younger athletes. The evaluation of a patient with a concussion should include assessment of the airway, breathing, circulation, level of consciousness, orientation, memory, concentration, and neurologic function. Multiple grading scales and return to play guidelines have been published to assist the clinician in the treatment of patients with concussions. Diagnostic and treatment concerns include spinal cord injury, intracranial pathology, second impact syndrome, and long-term impairment of cognitive function. Computerized neuropsychologic testing is a new tool in the treatment of concussions. These tests measure memory, new learning, attention, and reaction time and should be used as an adjunct to other tools for clinical decision making. Published guidelines will assist in treatment decisions; however, it should be kept in mind that all concussions are unique injuries.

Subjects: Athletic Injuries complications; Brain Concussion diagnosis; Brain Concussion etiology; Brain Concussion therapy; Adolescent: 13-18 years; All Child: 0-18 years

Database: MEDLINE with Full Text

[Concussion & second impact syndrome. How EMS providers should treat & protect their patients.](#) (eng) By Danks RR, Cannon C, JEMS: A Journal Of Emergency Medical Services [JEMS], ISSN: 0197-2510, 2006 Aug; Vol. 31 (8), pp. 86-8, 90-95; quiz 96; PMID: 16933395

Subjects: United States; Brain Concussion therapy; Brain Injuries physiopathology; Emergency Medical Services

Database: MEDLINE with Full Text

[Second-impact syndrome.](#)

By Cobb S, Battin B, The Journal Of School Nursing: The Official Publication Of The National Association Of School Nurses [J Sch Nurs], ISSN: 1059-8405, 2004 Oct; Vol. 20 (5), pp. 262-7; PMID: 15469376;

Sports-related injuries are among the more common causes of injury in adolescents that can result in concussion and its sequelae, postconcussion syndrome and second-impact syndrome (SIS). Students who experience multiple brain injuries within a short period of time (hours, days, or weeks) may suffer catastrophic or fatal reactions related to SIS. Adolescents are particularly susceptible to the dangers of SIS, and current return-to-play guidelines may be too lenient to protect a student from SIS. Any student with signs of a concussion should receive medical evaluation and not be allowed to return to play in the current game or practice. The role of the school nurse includes being knowledgeable about management of head injuries and return-to-play guidelines, providing follow-up for athletes who have concussions, and providing education on prevention and management of head injuries.

Database: MEDLINE with Full Text

[Recurrent athletic head injury: risks and when to retire.](#)

Cantu, R.C., Clinics in Sports Medicine July 2003; Vol. 22 Issue 3. p. 593-603 (English Abstract Available)

Abstract: This article focuses on the issues related to recurrent athletic head injuries; specifically, when cumulative exponential injury or the second impact syndrome may be anticipated. Case histories and research studies are used to illustrate the salient points. A signs-and-symptoms checklist for use in concussion evaluation and management is included. Finally, the topic of when to retire after repeated athletic head injuries is discussed and illustrated with a case study.

Database: SPORTDiscus with Full Text

[Linked Full Text](#) Notes:

National Sport Information Centre holds this title

[Mild traumatic brain injury.](#)

By Gebke KB, Current Sports Medicine Reports [Curr Sports Med Rep], ISSN: 1537-890X, 2002 Feb; Vol. 1 (1), pp. 23-7; PMID: 12831643; Mild traumatic brain injury is frequently seen in an athletic population, especially in contact sports. Many underlying pathophysiologic mechanisms have been identified. Several injury classification schemes have been proposed, yet severity grading and management remain controversial. Although second-impact syndrome is the driving force behind conservative management by many clinicians, athletes suffer more commonly from postconcussive syndrome. Recent research has examined the diagnostic value of several available tests, including electroencephalogram, magnetic resonance imaging, and neuropsychologic testing, with variable results. Neuropsychologic testing has shown promise in evaluating cognitive function when baseline studies are obtained and compared with postinjury examinations. Treatment of postconcussive symptoms with selective serotonin reuptake inhibitors has also been tested, with favorable results.

Database: MEDLINE with Full Text

Notes: National Sport Information Centre holds this title

[Second impact syndrome: a rare, catastrophic, preventable complication of concussion in young athletes.](#)

By Bowen AP, Journal Of Emergency Nursing: JEN: Official Publication Of The Emergency Department Nurses Association [J Emerg Nurs], ISSN: 0099-1767, 2003 Jun; Vol. 29 (3), pp. 287-9; PMID: 12776088

Database: MEDLINE with Full Text

[Concussion in sports: minimizing the risk for complications.](#)

By Kushner DS, American Family Physician [Am Fam Physician], ISSN: 0002-838X, 2001 Sep 15; Vol. 64 (6), pp. 1007-14; PMID: 11578022;

Mild traumatic brain injury, or concussion, is a common consequence of collisions, falls and other forms of contact in sports. Concussion may be defined as an acute trauma-induced alteration of mental function lasting fewer than 24 hours, with or without preceding loss of consciousness. The physician's responsibilities in assessing an athlete with concussion include determining the need for emergency intervention and offering guidance about the athlete's ability to return to play. Concussion may be complicated by cerebral edema related to the second impact syndrome, cumulative neuropsychologic deficits, intracranial bleeding or the postconcussion syndrome. The risk of complications is increased in athletes who prematurely return to play and in those with prolonged loss of consciousness or post-traumatic amnesia. An athlete with prolonged loss of consciousness or signs and symptoms that worsen or persist after a concussion should be evaluated in the emergency department. An athlete should not be allowed to resume sports participation until all symptoms of a concussion have resolved.

Database: MEDLINE with Full Text

[PDF Full Text](#)

[Does second impact syndrome exist?](#)

By McCrory P, Clinical Journal Of Sport Medicine: Official Journal Of The Canadian Academy Of Sport Medicine [Clin J Sport Med], ISSN: 1050-642X, 2001 Jul; Vol. 11 (3), pp. 144-9; PMID: 11495318;

Second impact syndrome (SIS) is a widely feared complication of traumatic brain injury. Although postulated to occur after repeated concussion, the evidence for such a premise is not compelling. This paper reviews the published evidence for and against the existence of this controversial entity. Rather than SIS being a complication of recurrent concussion, it is far more likely that the clinical condition represents "diffuse cerebral swelling," a well-recognized complication of traumatic brain injury. This condition is more common in children and adolescents, which reflects the known demographics of so-called "second impact syndrome." We propose that clinicians abandon the misleading term second impact syndrome and refer to the syndrome as diffuse cerebral swelling.

Database: MEDLINE with Full Text

[Blowing the Whistle on Concussions.](#)

By: Shulman, Polly. Scientific American Presents, 2000, p44-51, 8p, 4 Color Photographs, 1 Diagram

Abstract: The article focuses on care to be taken by athletes in case of concussion. A single blow to the head can cause a whole range of symptoms, from problems with balance and coordination to impaired decision making, failing memory and personality changes. Unless the injury is severe, patients generally recover with time. But most athletes return to games or practices far too soon. A second blow before a concussion is fully healed has a far greater chance of imposing more serious, longer-lasting harm. There is also the risk of death from "second impact syndrome," a rare condition in which the brain swells fatally. Furthermore, there's growing evidence that not only is one more likely to have another concussion if he has had one, but the problems accumulate. INSET: A HEADS UP ON HEADERS. (AN 20921353)

Subjects: BRAIN -- Concussion; BRAIN -- Wounds & injuries; SPORTS injuries; ATHLETES; SYNDROMES; DISEASES -- Risk factors

Database: Psychology and Behavioral Sciences Collection

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[Sports related mild traumatic brain injury in adolescents.](#)

By Baker RJ, Patel DR, Indian Journal Of Pediatrics [Indian J Pediatr], ISSN: 0019-5456, 2000 May; Vol. 67 (5), pp. 317-21; PMID: 10885200;

While head injuries are not common in youth sports, they may have catastrophic results. Concussion is also referred to as mild traumatic brain injury (MTBI). Although the occurrence of head injuries has been studied more extensively in American football, the findings have wider application for any MTBI. Recently, more attention has been directed at other sports in which both boys and girls participate. The diagnosis of MTBI is based on subjective findings and subtle changes in mental status. Other cerebral injuries requiring emergent or urgent neurosurgical attention should be ruled out. Objective tests such as CT scans and Magnetic Resonance Imaging (MRI) are usually without significant findings in MTBI. Neuropsychological testing may demonstrate areas of deficiencies, however, results may be difficult to interpret because of confounding factors. Complications following MTBI have been known to occur. The most catastrophic of these is second impact syndrome. There are a variety of guidelines for return to play following a concussion, which have been designed in an effort to avoid problems such as second impact syndrome. These guidelines are based more on clinical experience than on scientific evidence. Education, good training and coaching techniques, improved equipment, and rule changes and enforcement, can all help in curbing the sports related head injuries in adolescents.

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