

Verletzungen der Halswirbelsäule im Sport



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Digivoting Frage

HWS Verletzungen im Sport sind:

1. Selten
2. Häufig



Verletzungsschwere

Leichte Verletzung: häufig
Distorsion der Muskulatur



Schwere Verletzung: selten
Disco-ligamentäre Verletzung
Wirbelfrakturen
Contusio spinalis

Digitizing Frage

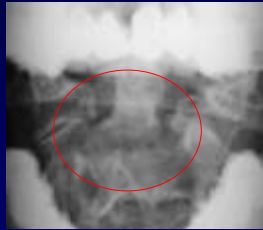
Für die Basisdiagnostik bei der HWS-
Verletzung gilt:

1. HWS Röntgen in 2 Ebenen als Standard
2. CT und MRT sind unbedingt erforderlich
3. Bestimmung der Nervenleitgeschwindigkeit

Diagnostik



- Röntgen: Basisdiagnostik C0-Th1
- ap, seitlich und Densaufnahme



Diagnostik

- Funktionsaufnahme



Diagnostik



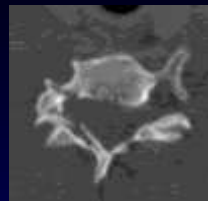
Lateral der Cervico-Thorakale Übergang nicht einsehbar



Swimmer's View: Anterolisthese C6/C7

Weiterführende Diagnostik

- **CT:**
 - Spinalkanaleinengung, Lamina & Pedikelfraktur, craniocerv. Übergang, Occipitalcondylen



- **MRT:**
 - Weichteile, Gefäße, Myelon,



Evidenz Bildgebende Diagnostik

- Class I:
 - Röntgen nicht notwendig wenn entsprechende klinische Untersuchung möglich ist
 - NEXUS - Study
 - Canadian C-Spine Rule
 - » 100% sensitivity
 - » 42.5% specificity
 - » Potential radiography order rate 58.2
- Class II:
 - CT sensitiver als Röntgen (97,2 vs. 85.2%) um Frakturen festzustellen. Häufig inkomplette Darstellung der HWS beim Röntgen

Digivoting Frage

Training und Protektoren bieten einen absoluten Schutz vor Verletzung der HWS:

1. ja
2. nein



Prävention



Bewusstsein/Verhaltensregeln

Reglement/Equipment

Training

Protektion
(Motorsport, Wintersport)



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Prävention

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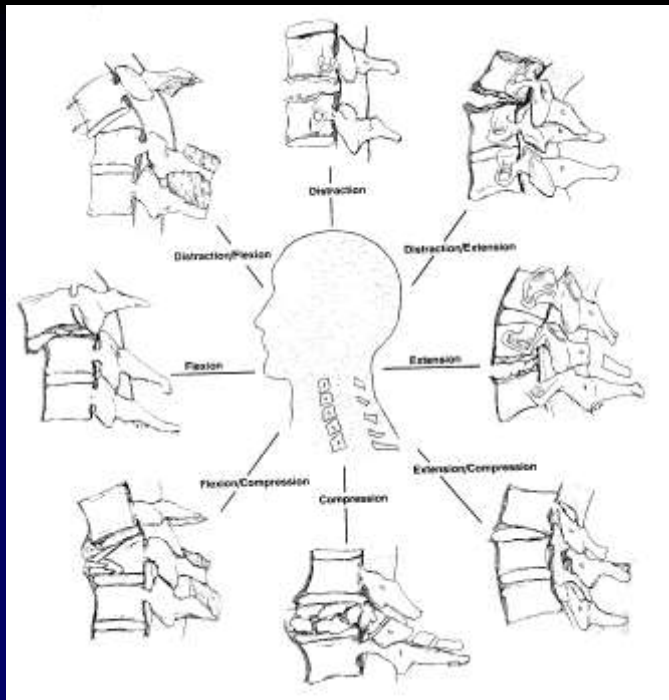
Reglement/Equipment

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Protektion

(Motorsport, Wintersport?)





DESCRIPTION

Hyperextension

Excessive posterior movement of head or neck

DIAGRAM

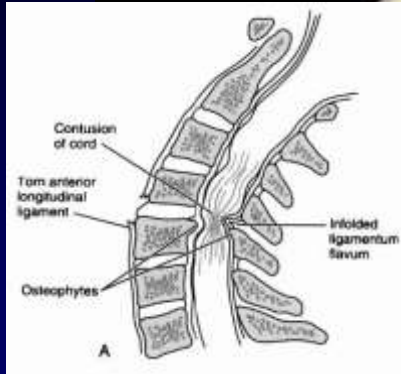


EXAMPLES

- Face into windshield in MVC
- Elderly person falling to the floor
- Football tackler
- Dive into shallow water



Hyperextension – Contusion Spine



Compression

Weight of head or pelvis driven into stationary neck or torso



Dive into shallow water
Fall of greater than 10 to 20 feet onto head or legs

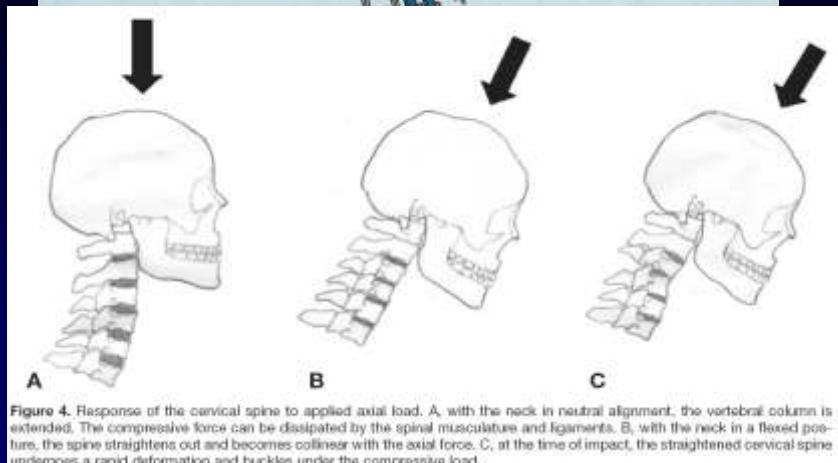


Figure 4. Response of the cervical spine to applied axial load. A, with the neck in neutral alignment, the vertebral column is extended. The compressive force can be dissipated by the spinal musculature and ligaments. B, with the neck in a flexed posture, the spine straightens out and becomes collinear with the axial force. C, at the time of impact, the straightened cervical spine undergoes a rapid deformation and buckles under the compressive load.

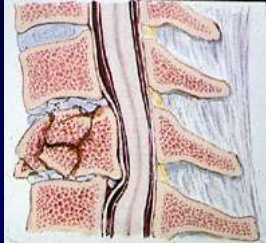
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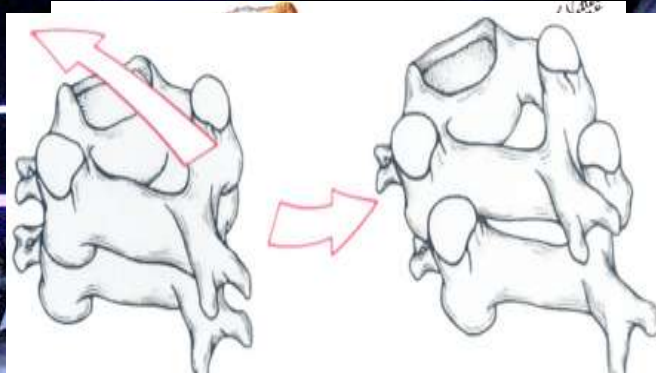


Hyperflexion

Excessive anterior movement of head onto chest



Rider thrown off of horse or motorcycle
Dive into shallow water



Anterior dislocation of L5-S1 with tear of interspinal ligament, facet capsules and posterior fibers of intervertebral disc

X-ray film (lateral view) showing bilateral interfacet dislocation at C5-6

Lateral Stress

Direct lateral force on spinal column, typically shearing one level of cord from another



"T-bone" MVC
Fall



Rotation

Excessive rotation of the torso and head, moving one side of the spinal column against the other



Rollover MVC
Motorcycle accident

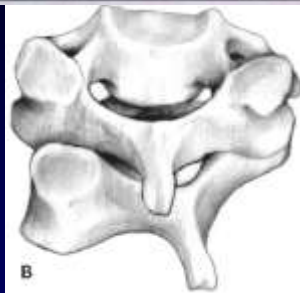


Figure 6. Flexion-distraction injuries of the lower cervical spine. A, bilateral facet dislocation. Lateral cervical spine radiograph showing bilateral facet dislocation of C6 on C7. This pattern of injury results from disruption of the supraspinous and interspinous ligaments, facet capsules, ligamentum flavum, posterior longitudinal ligament, and the dorsal portions of the annulus fibrosus. The soft tissue damage can be associated with fractures of the superior articular processes. B, unilateral facet dislocation. This injury is usually caused by the combination of flexion and rotational forces. The addition of shear or compressive forces can cause fracture of the articular process.

Final Digivoting Frage

Rückenmarksläsionen bei der HWS-Verletzung sind :

1. häufig ?
2. leicht zu behandeln ?
3. schwerwiegend ?

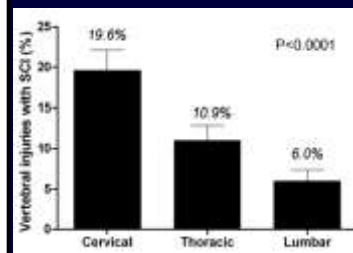
Häufig?

Spinal injury patterns among skiers and snowboarders

Spine injuries in snow sports

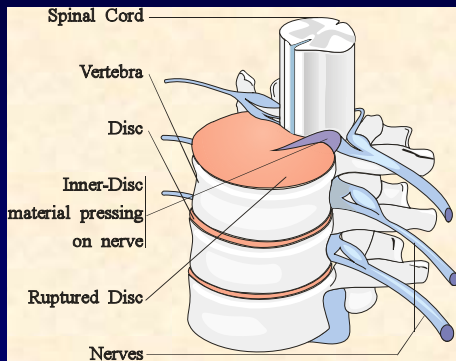
TABLE 2: Demographic data for patients with ski and snowboard injuries obtained from the NIS

Characteristic	No. (%)		
	Total	Skiers	Snowboarders
no. of patients	8634 (100)	5277 (61)	3357 (39)
sex			
M	6096 (71)	3423 (65)	2673 (80)
F	2538 (29)	1854 (35)	684 (20)
average age in yrs	33.3	39.5	23.5
range	2-99	2-99	2-97
no. of injuries			
vertebral	510 (5.9)	433 (8.2)	77 (2.3)
SCI	85 (0.98)	49 (0.93)	36 (1.07)



Leicht zu behandeln?

- Flaschenhals (Verhältnis Spinalkanal / RM)
- wenig Reserveraum



Schwerwiegend!

Samuel Koch - Mit vollem Tempo in die Bewegungslosigkeit



Montag, 27.06.2011, FOCUS-Online

**Danke für Ihre
Aufmerksamkeit**