

BIOMECHANIKA KRĘGOSŁUPA

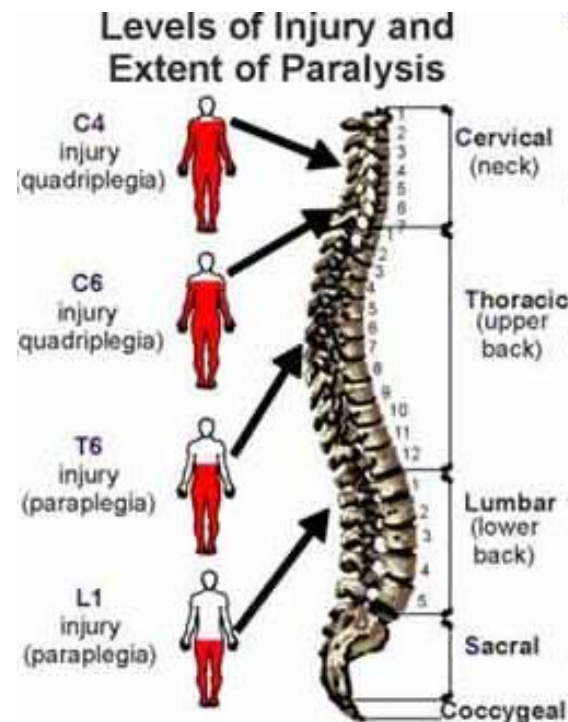


*Urazy i schorzenia
kręgosłupa*





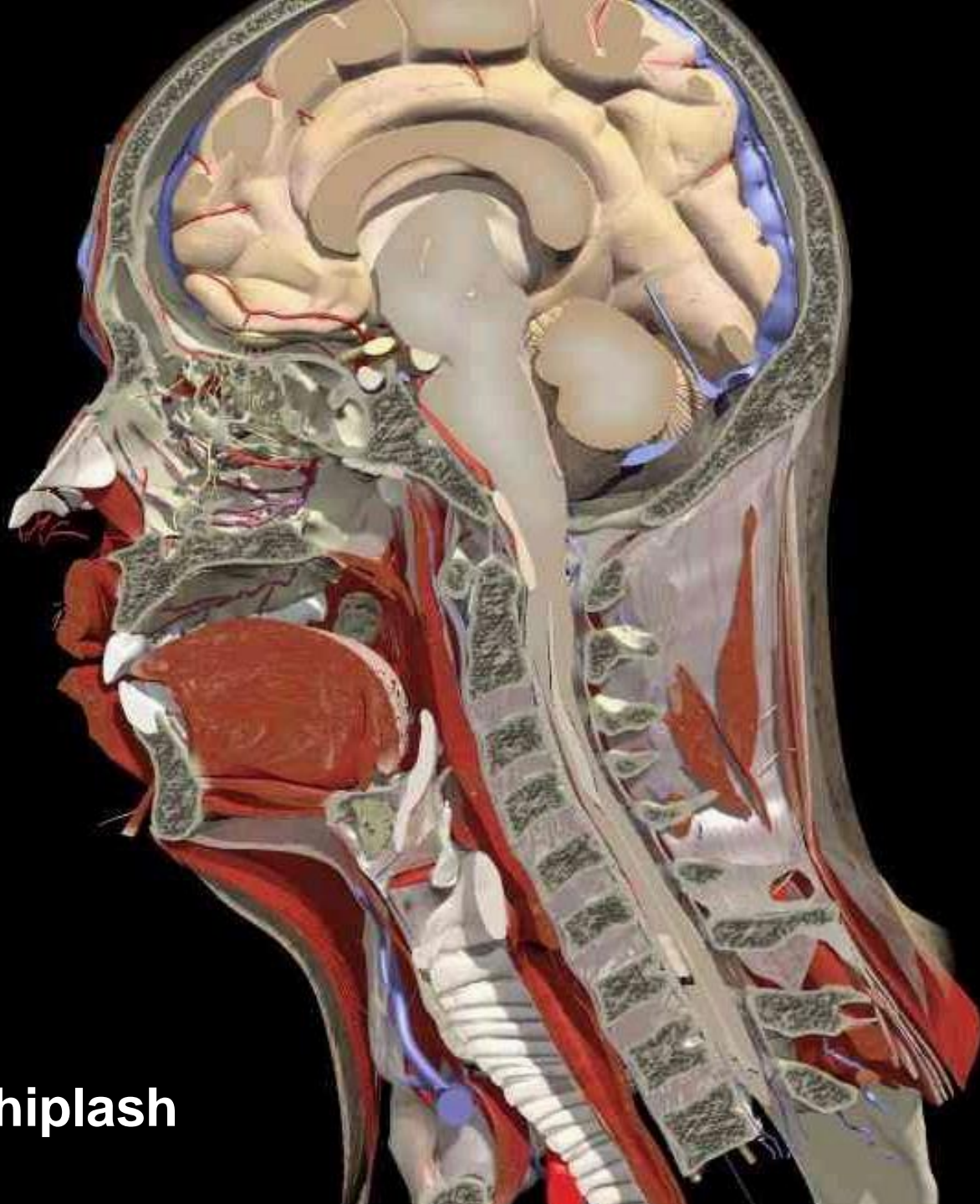
Porażenie kończyn



Cervical spine injury, the patient was quadriplegic



whiplash





Compression Fracture

Złamanie kompresyjne

This usually results from a hyperflexion (front to back) injury where part of the spinal column is forced forward and downward.

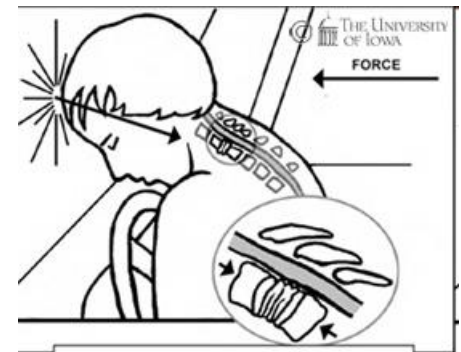
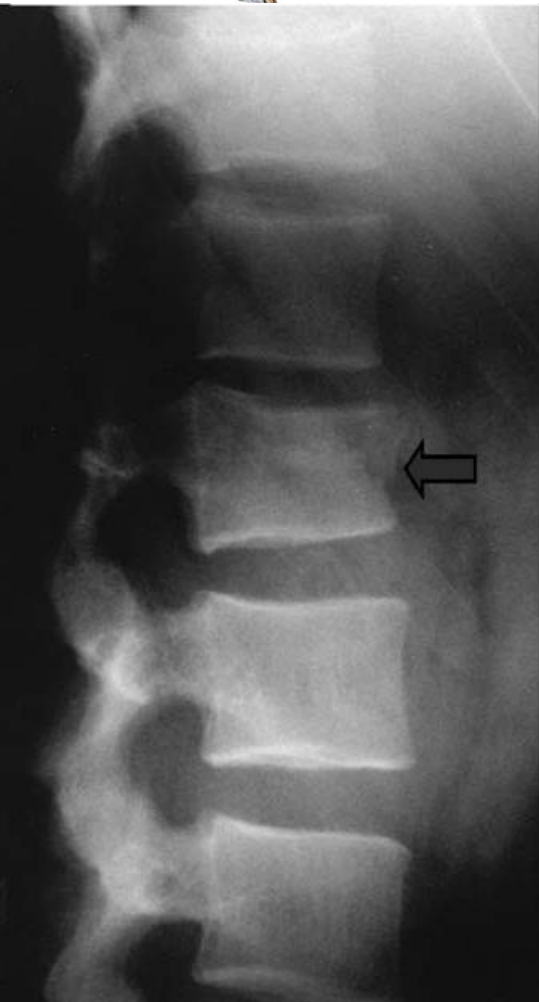


Figure 4. Compression Fracture



Burst Fracture

Złamanie eksplozyjne

A burst fracture is a very serious form of compression fracture. In this type of fracture the bone is shattered from the injury. Bone fragments may pierce the spinal cord. The injury usually occurs from a downward or upward force along the spine. Burst fractures often result in serious spinal cord injury.

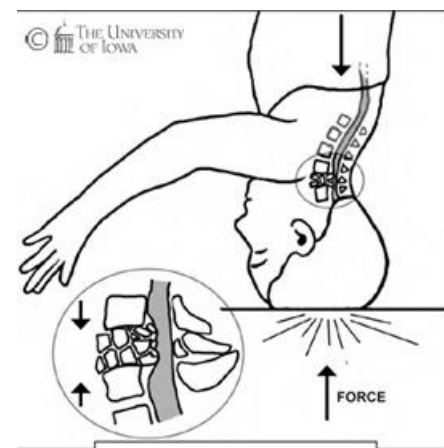


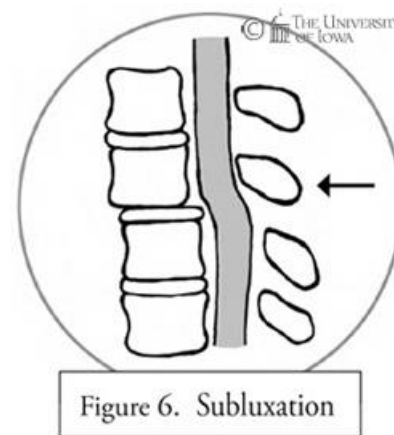
Figure 5. Burst Fracture



Subluxation

Zwichniecie

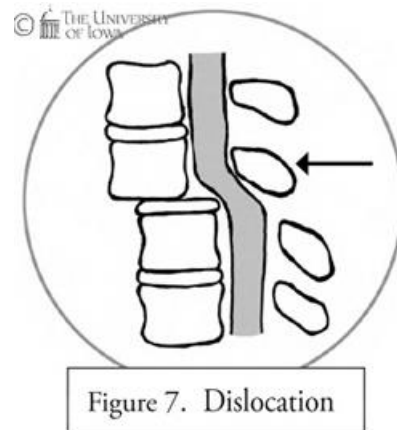
In subluxation, the joints in the back part of the vertebrae are weakened by the abnormal movement of the bones. It is a partial dislocation of the vertebrae. This happens if the muscles and ligaments in the spine are injured and may also cause injury to the spinal cord.





Dislocation

A dislocation also may occur when ligaments are torn or badly stretched from the injury. This allows too much movement of the vertebrae. The vertebrae may "lock" over each other on one or both sides. A spinal cord injury may occur, depending on how much extra movement is allowed by the torn ligaments. The vertebrae that are not lined up correctly are returned to a normal position by a "reduction". Traction or surgery is often required for a reduction. A brace, halo vest, or surgery to fuse the vertebrae is sometimes needed to keep the vertebrae lined up correctly.





Fracture-Dislocation

This occurs when there is a fracture and a dislocation of the vertebrae. There is usually serious ligament and soft tissue injury and this may also cause injury to the spinal cord.

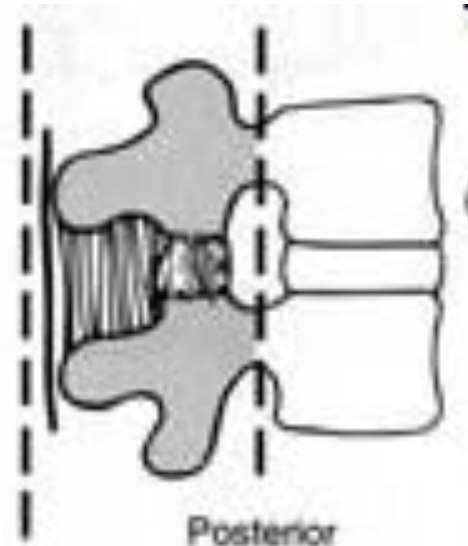
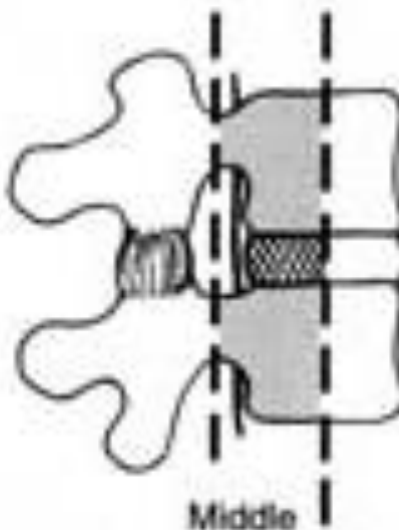
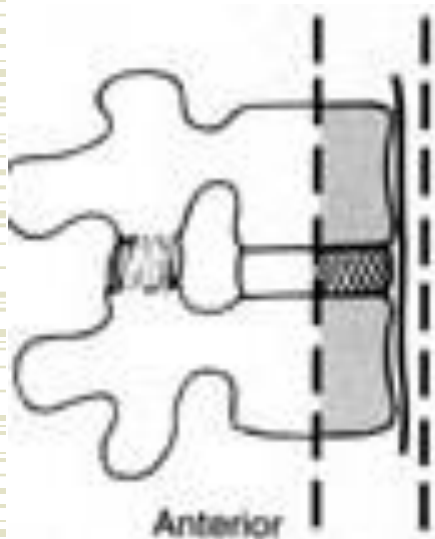


Figure 8. Fracture-Dislocation



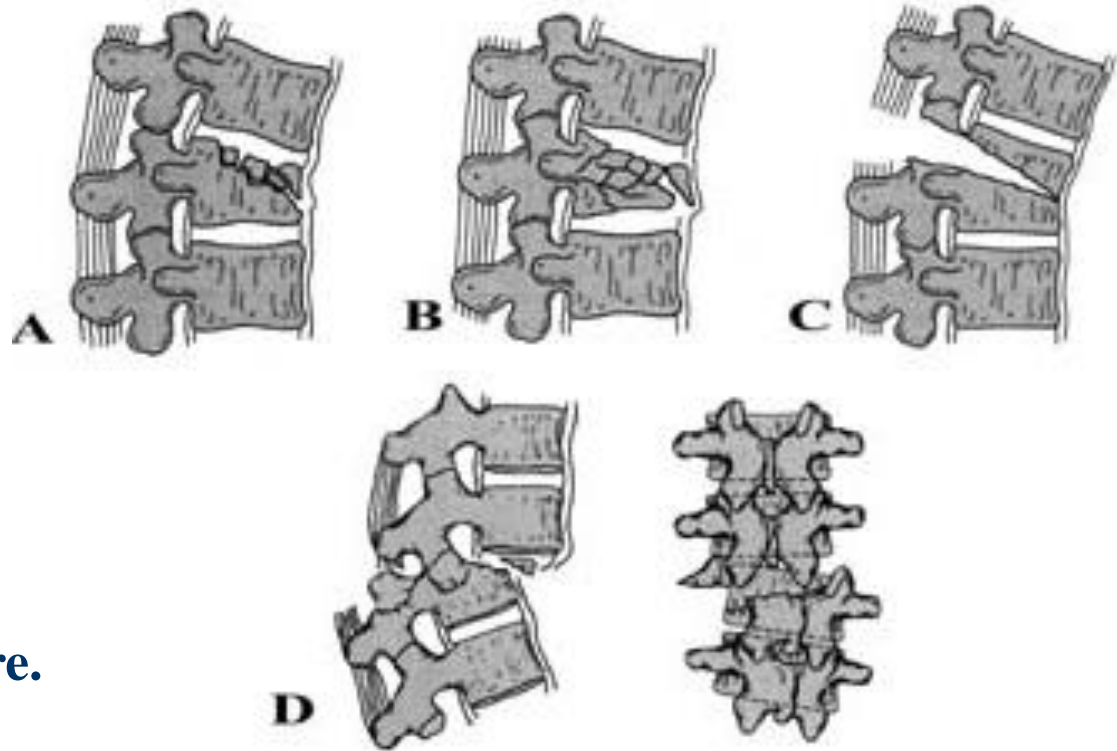
The three-column structure

Trójkolumnowa koncepcja budowy kręgosłupa





Denis classification of thoracolumbar trauma



(A) Compression fracture.

(B) Burst fracture.

(C) Flexion--distraction injury.

(D) Lateral and posterior view of a fracture dislocation.

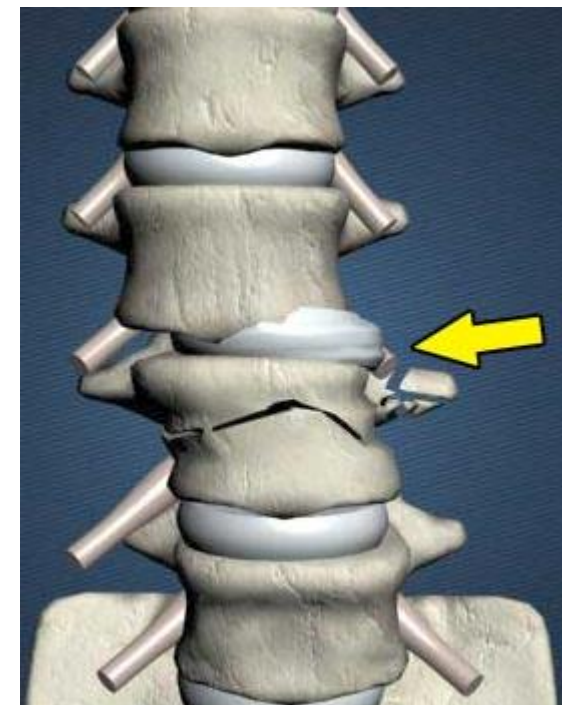
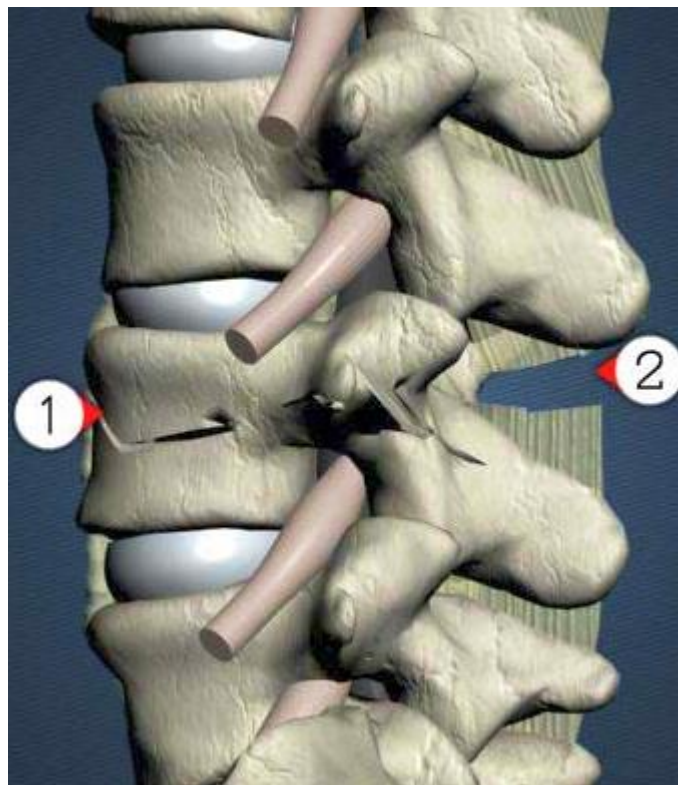
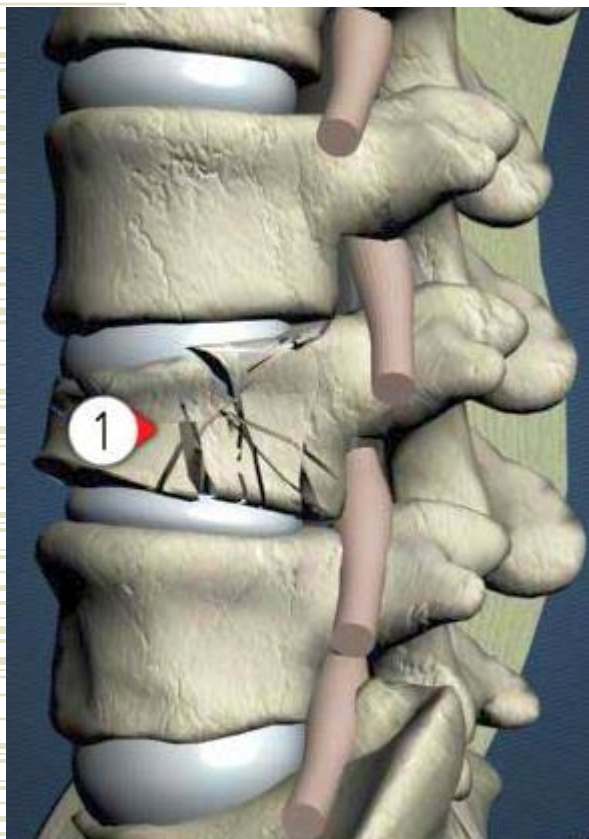


Trzy mechanizmy urazu

kompresyjne

zgięciowe

rotacyjne





CLASSIFICATION OF LOWER CERVICAL SPINE INJURIES

A COMPRESSION INJURIES



I. Tassement
antérieur



II. Comminutive
fracture



III. "Tear drop"
fracture

B FLEXION-EXTENSION-DISTRACTION INJURIES



I. Entorse
"moyenne"



II. Entorse
grave



III. Luxation fracture
biarticulaire

C ROTATION INJURIES



I. Fracture
uniarticulaire
(F.U.A.)



II. Fracture-séparation
du massif articulaire
(F.S.M.A.)



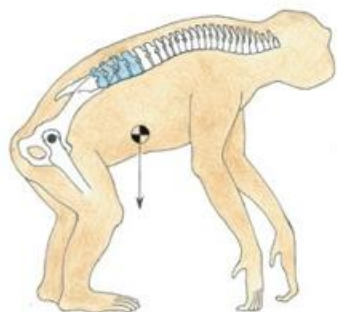
III. Luxation
uniarticulaire
(L.U.A.)



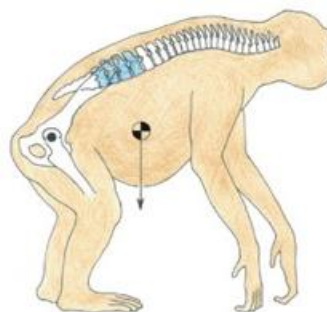


Ciąża

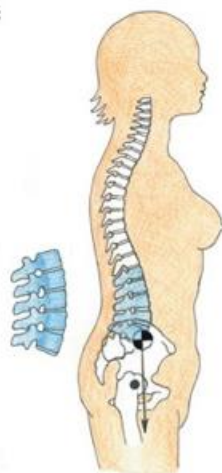
a



b



c



d



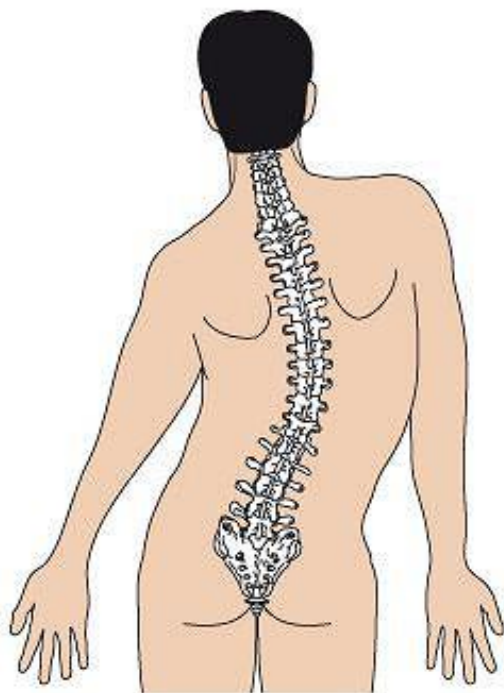
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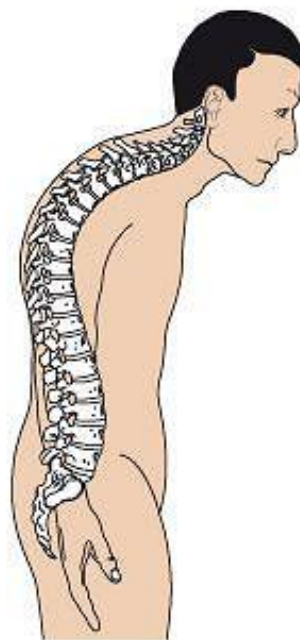


Schorzenia kręgosłupa

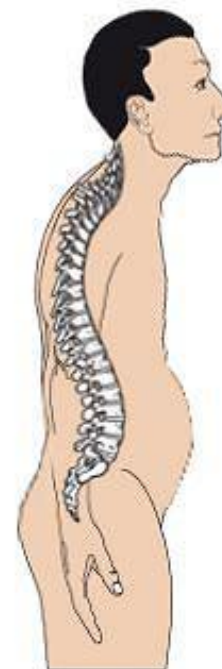
Wady postawy



skolioza



kifoza



lordoza



Przeciążenie kręgosłupa szyjnego



Długotrwałe utrzymywana nieprawidłowa pozycja ciała

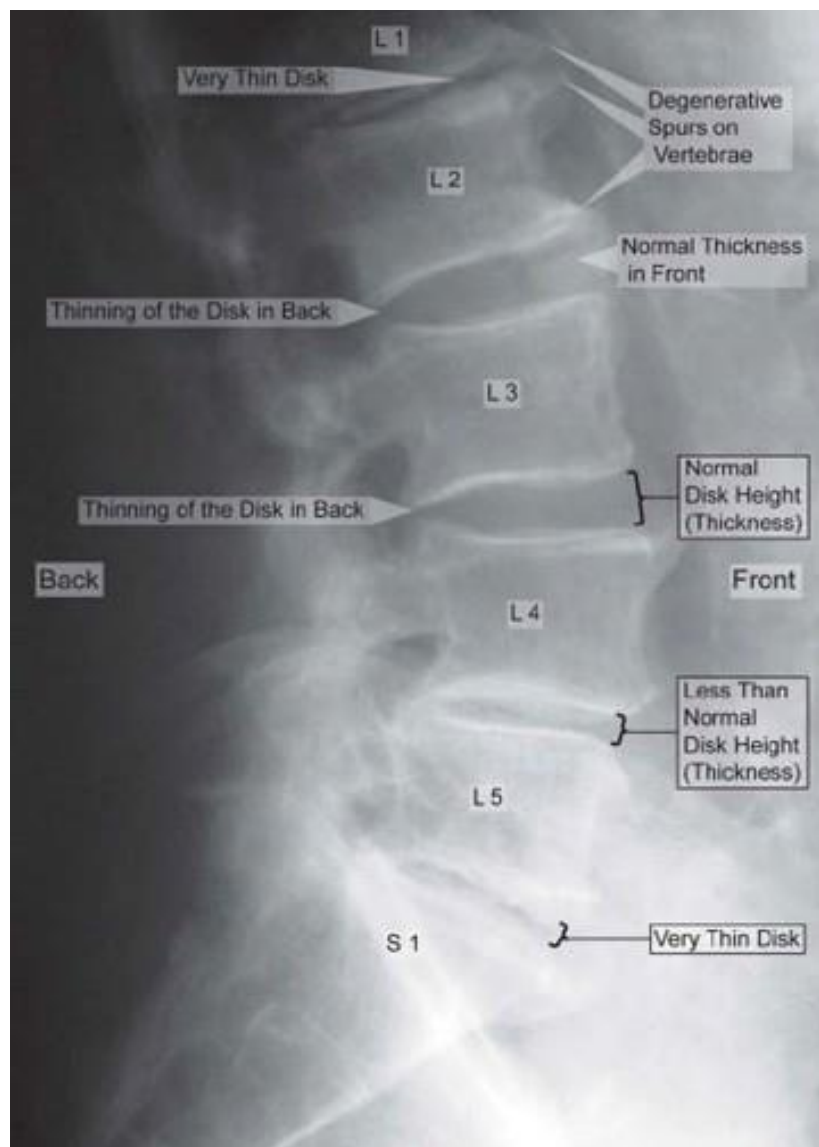


Zwyrodnienia szyjnego odcinka kręgosłupa





Schorzenia kręgosłupa





Schorzenia kręgosłupa





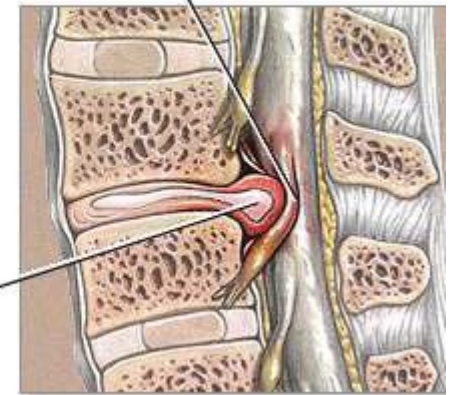
Dyskopatia

Intervertebral disc herniation, commonly known as a slipped or ruptured disc. A herniated disc is a painful back condition that occurs when some of the disc material in the backbone pops out of place and bulges into the spinal canal, creating pressure on the spinal cord and pain that typically goes all the way down the leg. It is also known as a herniated lumbar or ruptured disc.



Herniated disc

Compressed lumbar spinal nerve

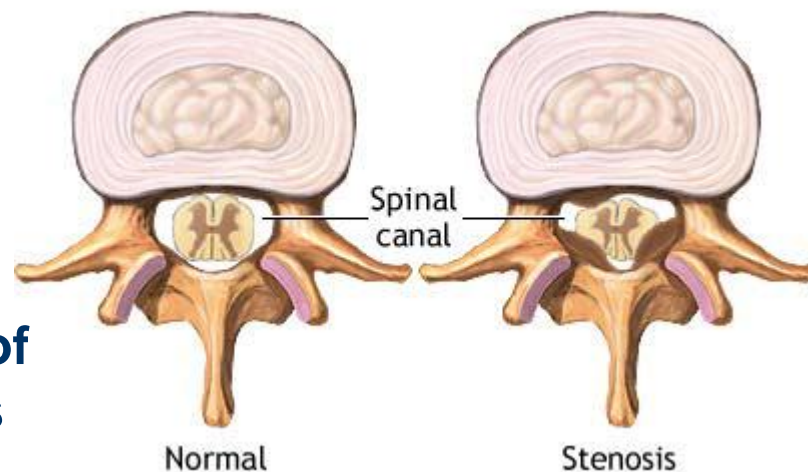




Zwężenie kanału kręgowego

Spinal Stenosis. The spinal canal runs through the vertebrae and contains the nerves supplying sensation and strength to the legs. Between the vertebrae are the intervertebral discs and the spinal facet joints. As people age, there can be a drying out and shrinking of the disc spaces between the bones (80% of the disc is made up of water). You can feel pain anywhere along your back or leg when the nerve is pressed in this way.

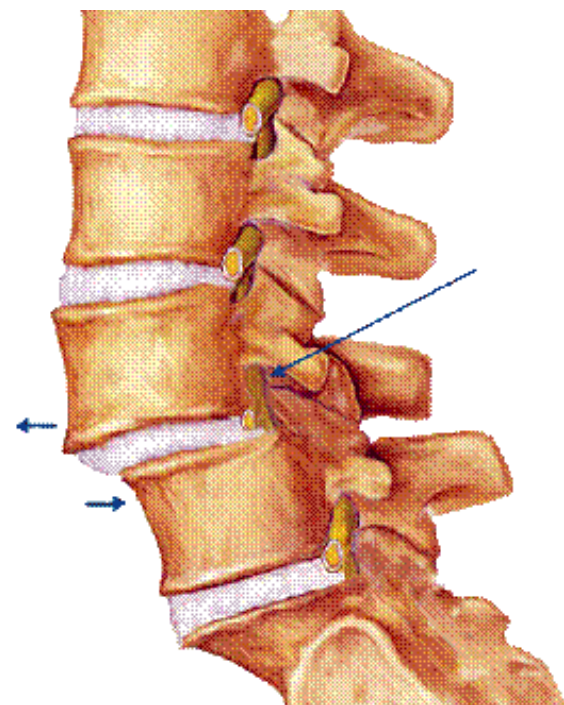
Spinal stenosis is a narrowing of the spinal canal





Kręgozmyk

Degenerative spondylolisthesis (spon-duh-low-lis-thee-sis) is a condition in which a vertebra in the spine slips forward out of alignment. It is caused by degeneration of both the disc and the facet joint, which allows the vertebra to move out of place.





Spinal Fixation System
(Titanium)



Thoracic Plates



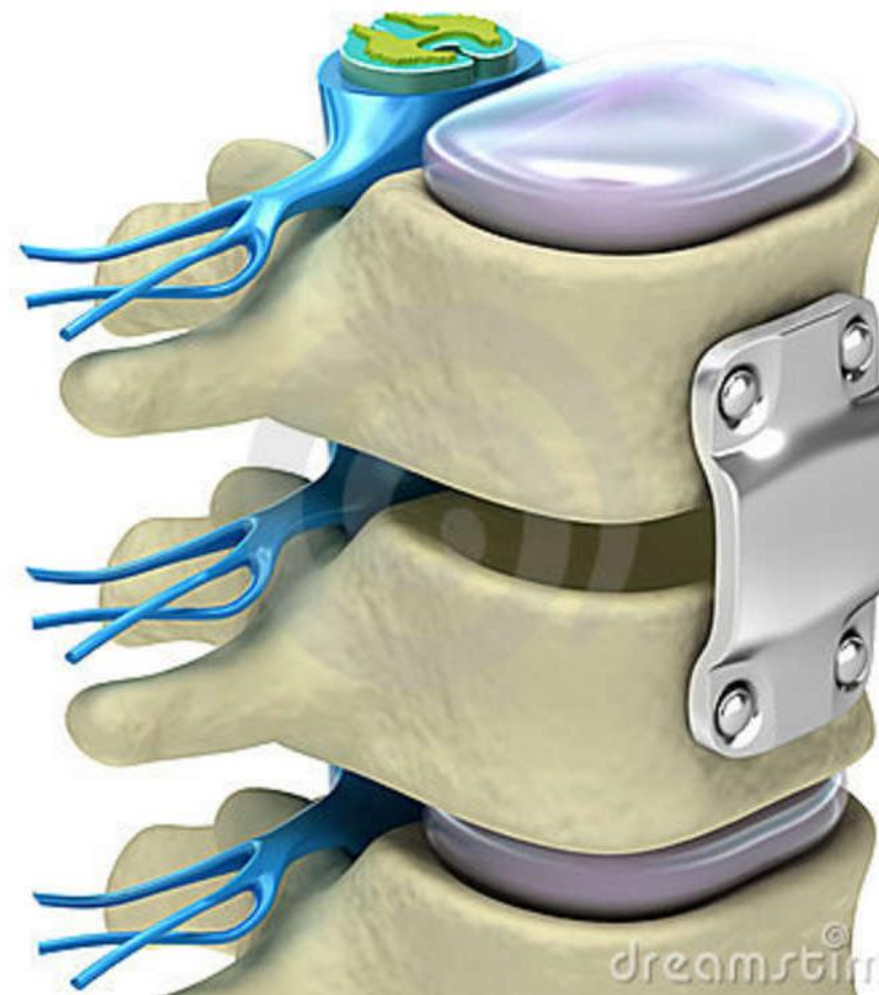
Spinal Fixation System

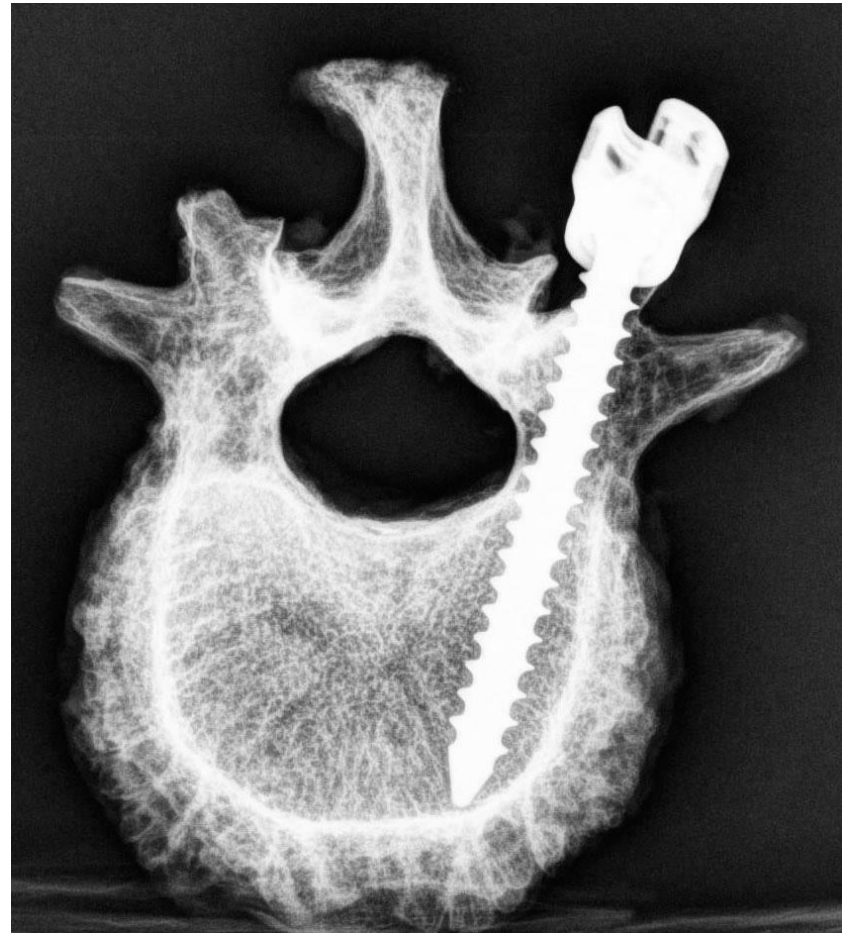
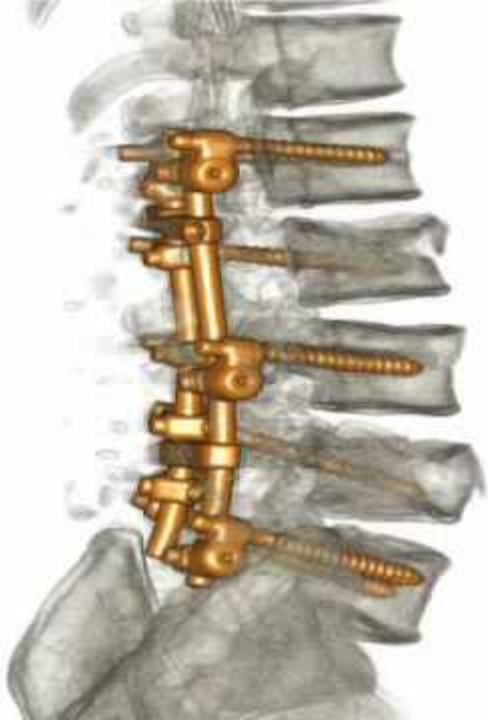


Optima® ZS Spinal Fixation System

Blackstone Spinal Fixation System









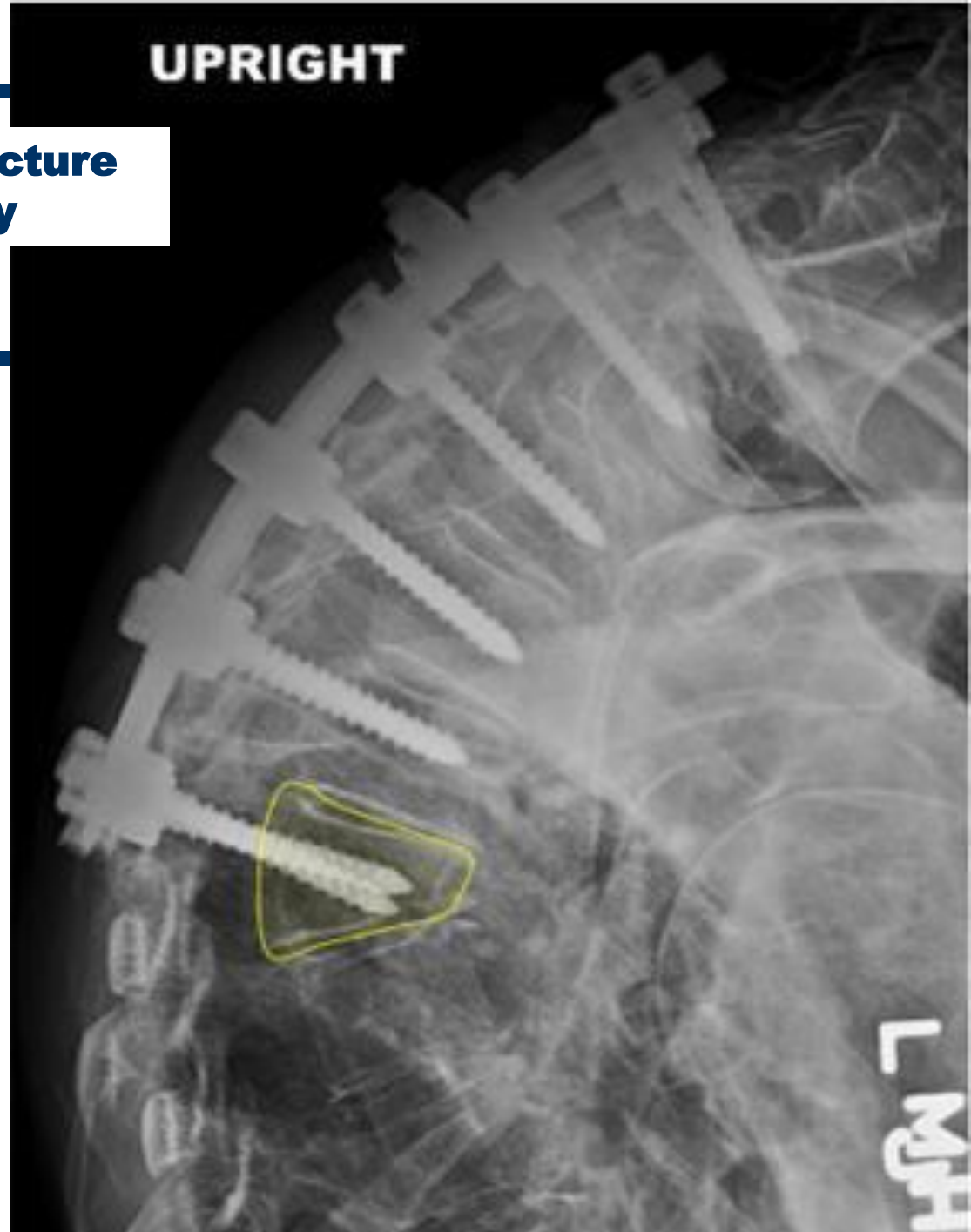
Fusion cage





UPRIGHT

An X-ray of a compression fracture following spinal fusion surgery



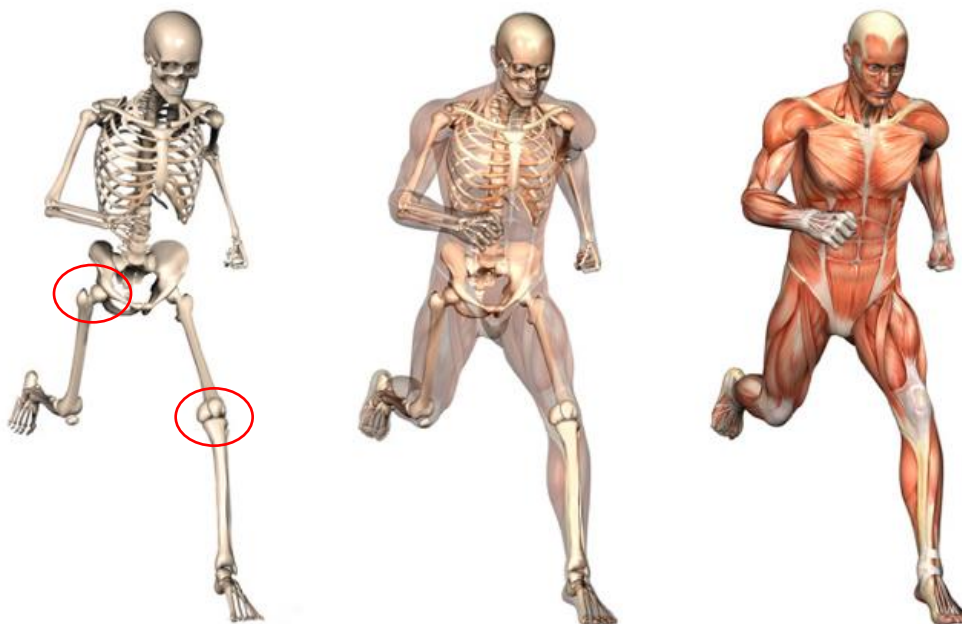
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Ograniczenia w poruszaniu

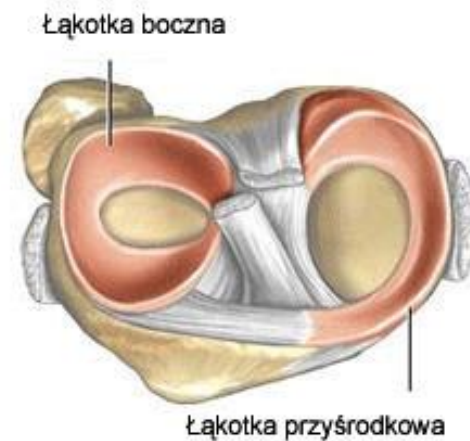


Słabe punkty



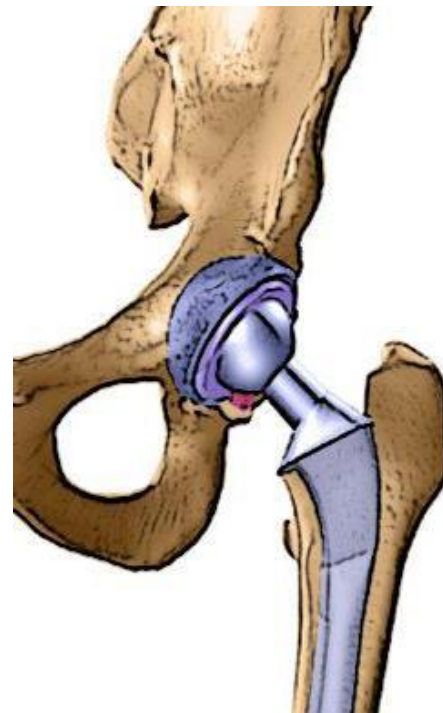
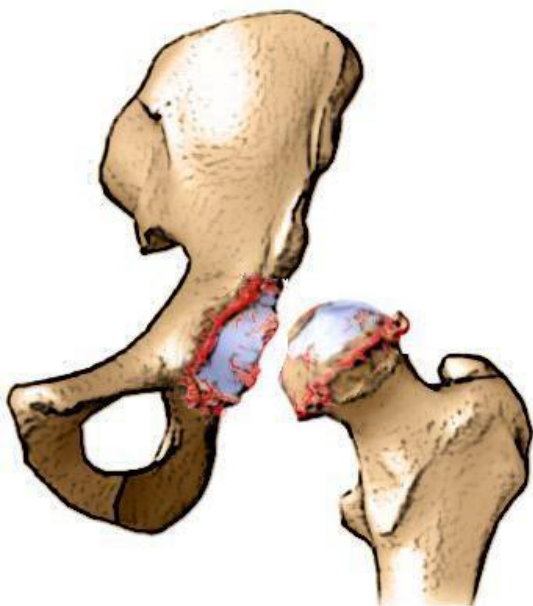


Staw kolanowy





Staw biodrowy





Ścięgno Achillesa

