

# SHOULDER AND TBI CARE

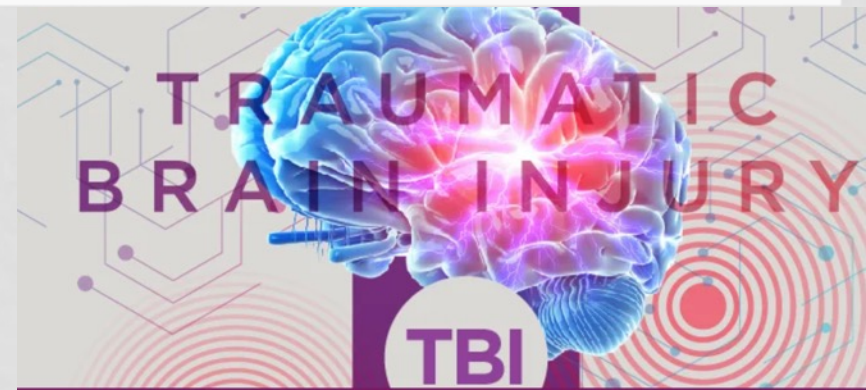
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Mountainland Physical Therapy

# OUTLINE

- Shoulder Injuries Commonly Seen in PI Patients
- Evaluation and Treatment of Concussion Patients
- UtahOSIC services
- Q&A

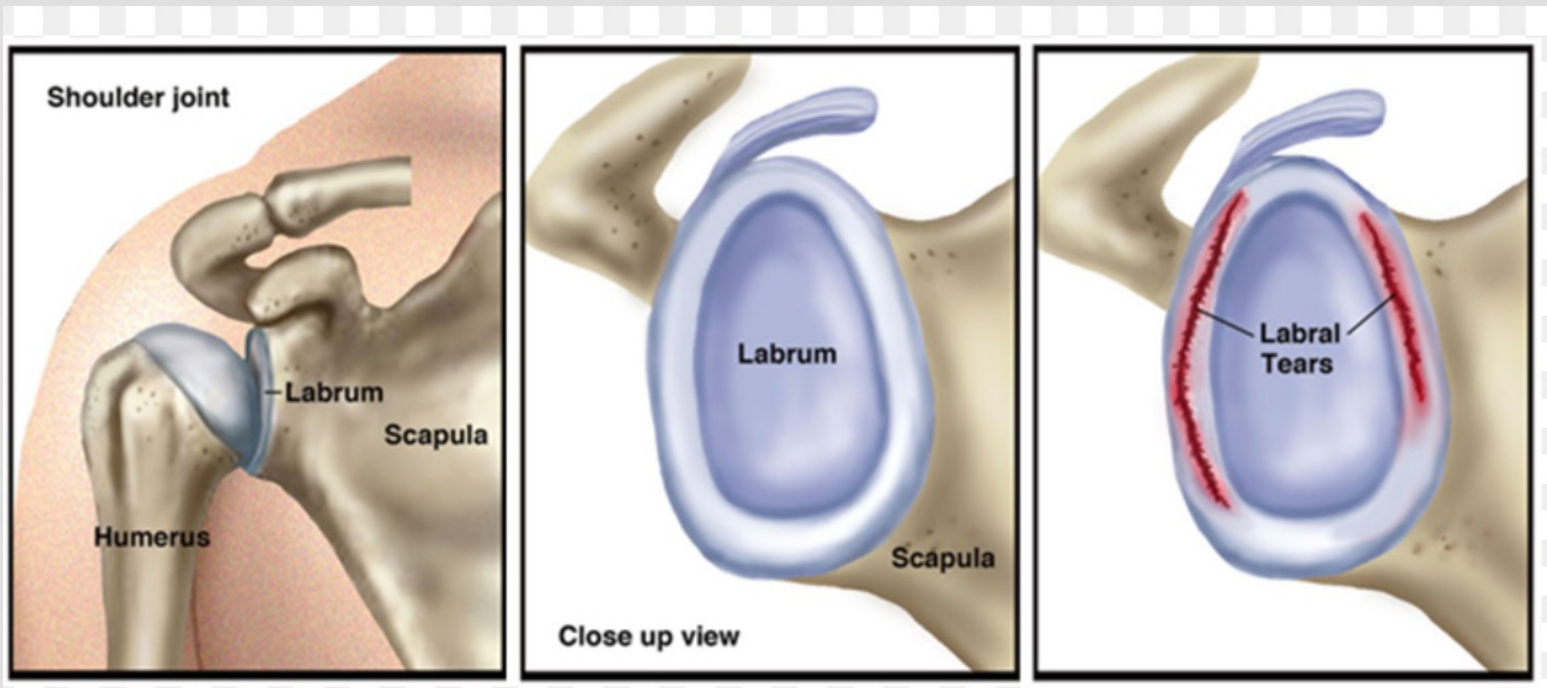


# COMMON SHOULDER INJURIES FROM ACCIDENTS

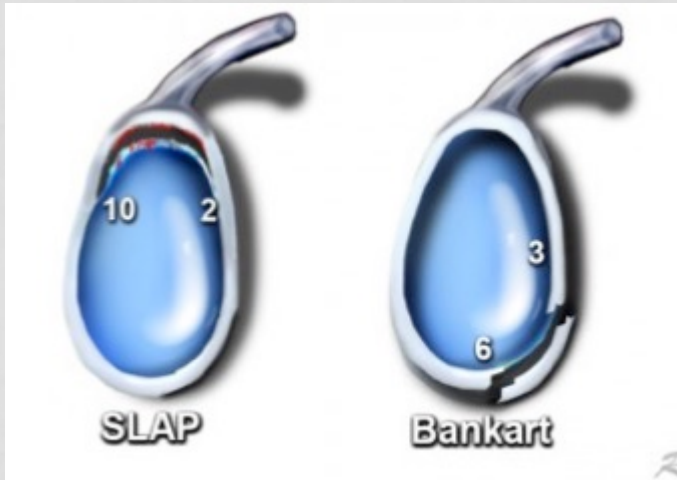
- Labral Tears
- Shoulder Instability
- Rotator Cuff Injury
- AC joint
- Clavicle Fracture



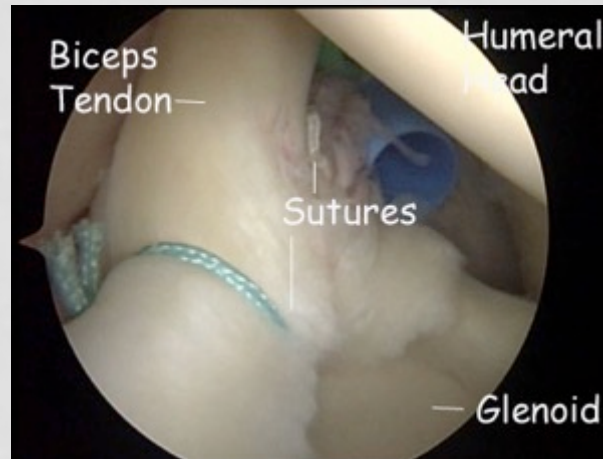
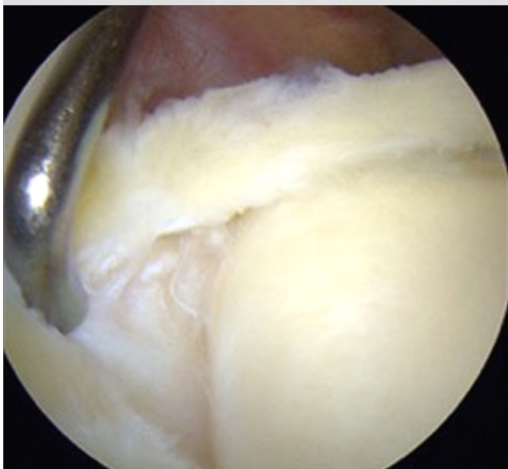
# LABRUM



# SLAP AND BANKART LESION



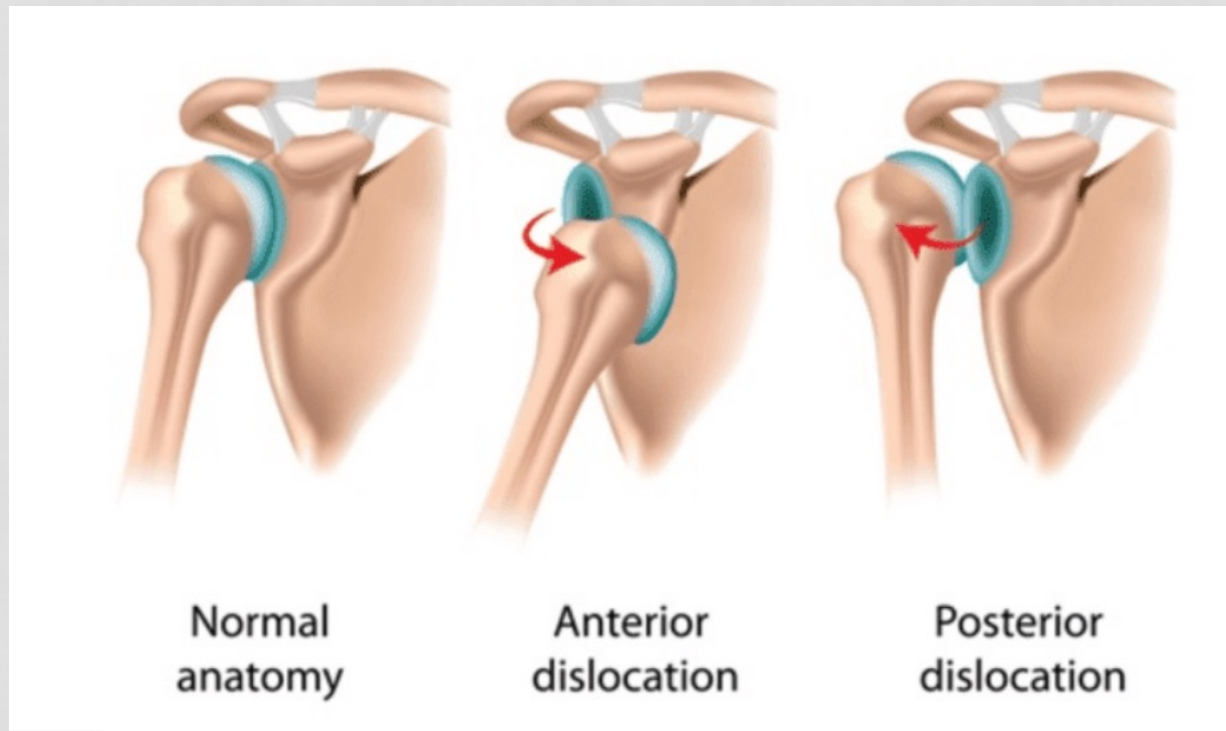
- Labral detachment
  - Pain and catching
  - Deep ache, marked
- Treated surgically,  
no capacity for  
spontaneous  
healing



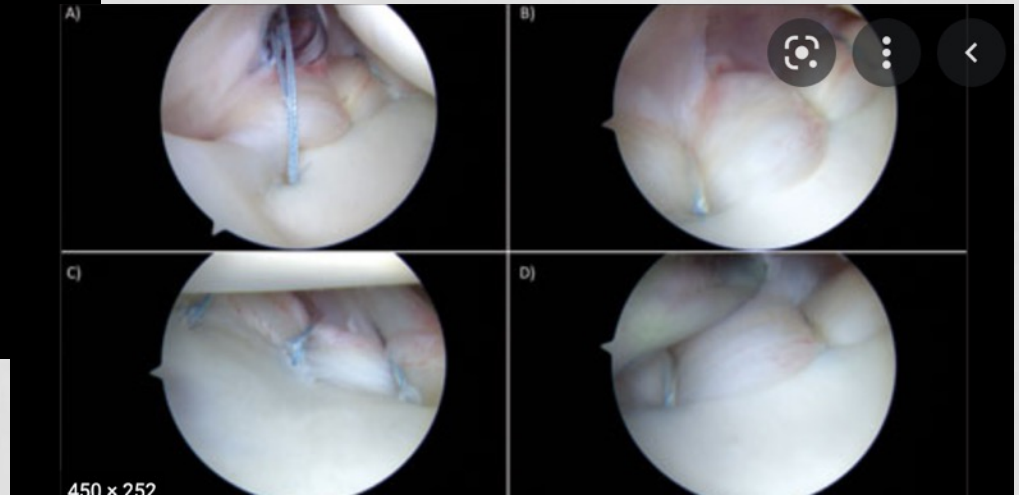
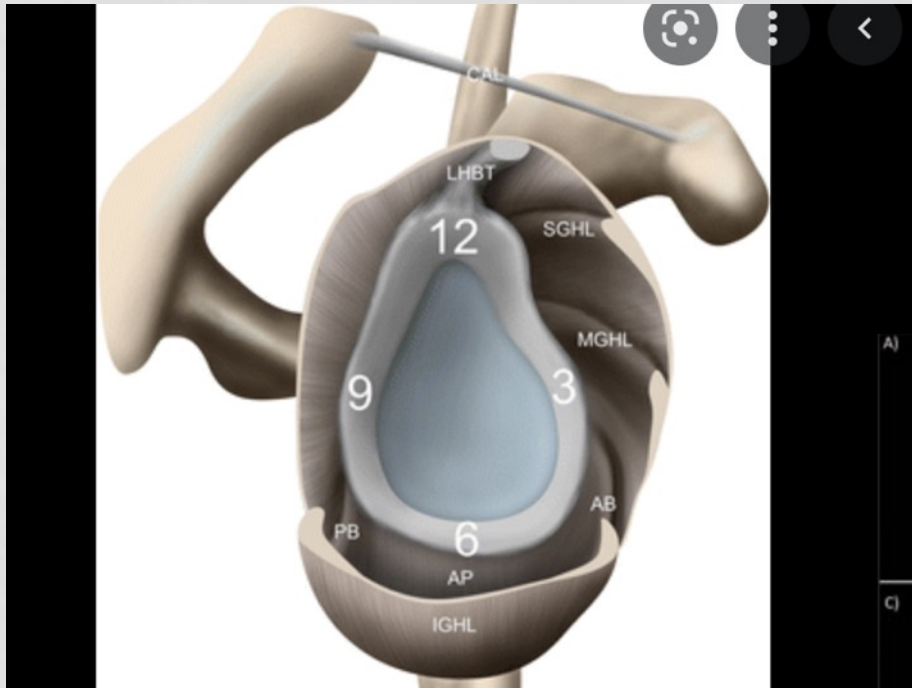
# SLAP - MRI ARTHROGRAM



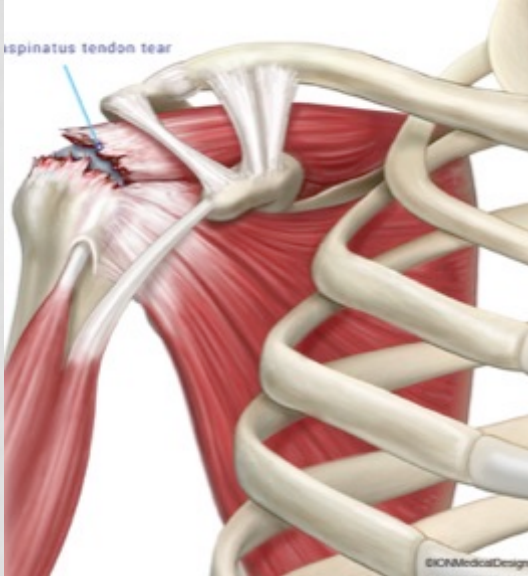
# SHOULDER INSTABILITY



# SHOULDER INSTABILITY



# ROTATOR CUFF INJURY



- Partial or Complete
- Anatomy can determine if partial RCT can heal
- Many full tears need repair



# ROTATOR CUFF PARTIAL TEARS -PRP

## Allogeneic Platelet-Rich Plasma Versus Corticosteroid Injection for the Treatment of Rotator Cuff Disease

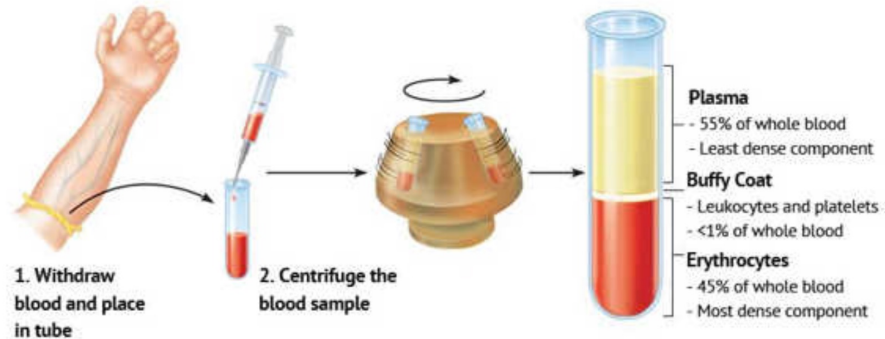
A Randomized Controlled Trial

Chris Hyunchul Jo, MD, Seung Yeon Lee, MS, Kang Sup Yoon, MD, Sohee Oh, PhD, and Sue Shin, MD

*Investigation performed at the Department of Orthopedic Surgery, SMG-SNU Boramae Medical Center, Seoul National University College of Medicine, Seoul, Korea*

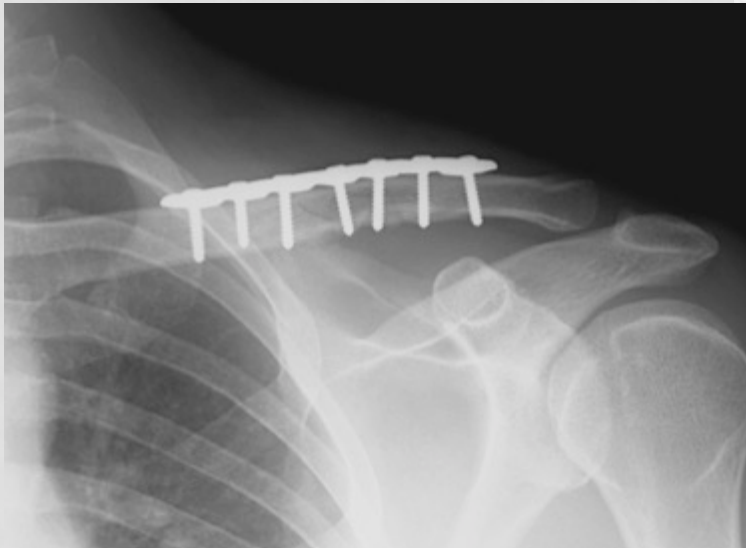
- PRP much more effective than steroid to treat partial tendon tears and injuries

### PRP Treatment



# CLAVICLE FRACTURES

- Clavicle Fracture
  - When displaced treated surgically
  - This has evolved over time



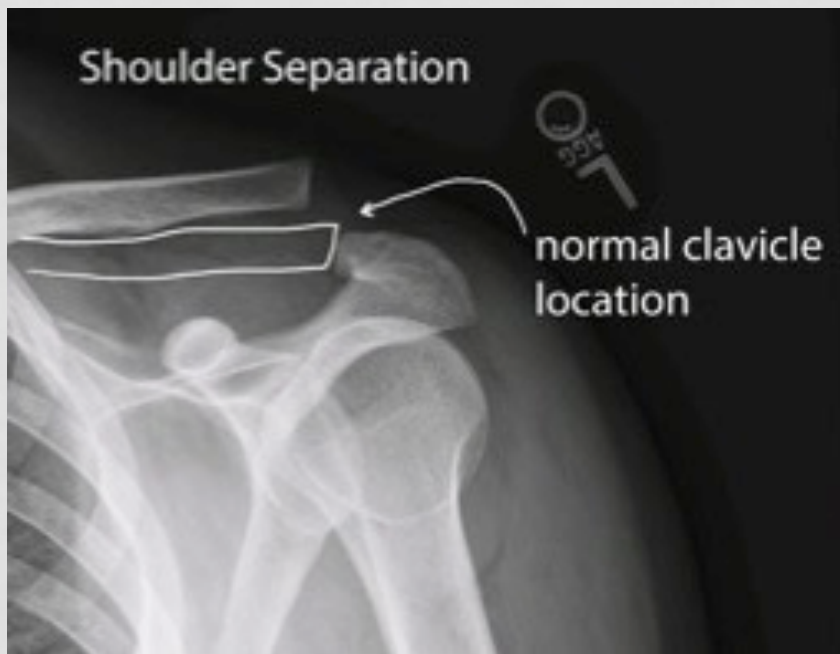
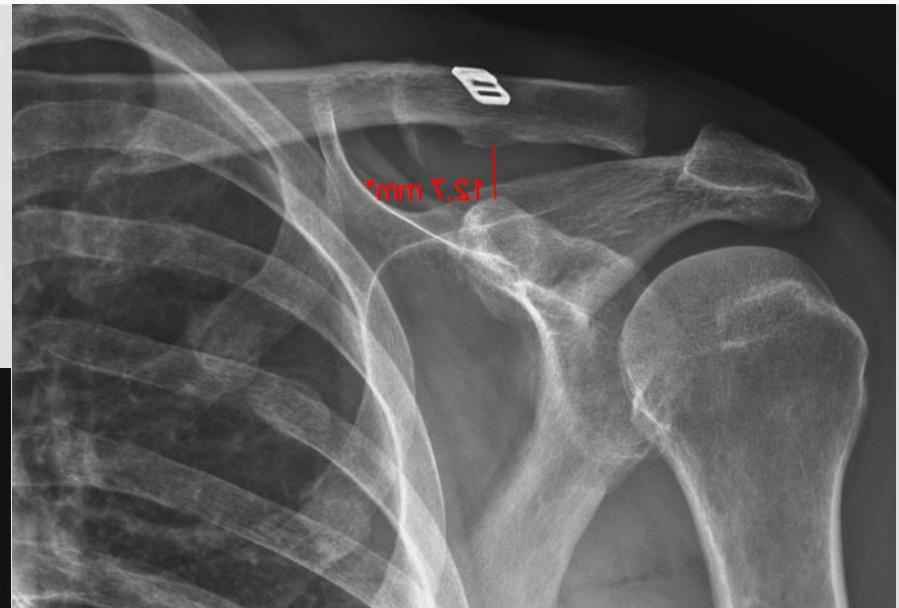
# ACROMIOCLAVICULAR (AC) INJURY "SHOULDER SEPARATION"

- Grade I typically benign
- Grade II can be problematic
- Grade III complete ligament tear
- Seatbelt injury very common



# ACROMIOCLAVICULAR INJURY "SHOULDER SEPARATION"

- Gross Instability is treated surgically to restore joint and shoulder function





- Overview of Concussion/TBI
- Common Symptoms
- Diagnostic Tools
- Challenges
- Coordinated team delivering care
- Some Therapeutic Interventions

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SPINE & INJURY  
CENTER

**OSIC** UTAH  
ORTHOPEDIC  
SPINE & INJURY  
CENTER

# TRAUMATIC BRAIN INJURY DEFINED

A concussion is a type of traumatic brain injury - or TBI - caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move quickly back and forth. This fast movement can cause the brain to bounce around or twist in the skull, creating chemical changes in the brain and sometimes stretching and damaging the brain cells.

**It is a Brain Injury**

(CDC-Concussion:

<https://www.cdc.gov/headsup/index.html>)

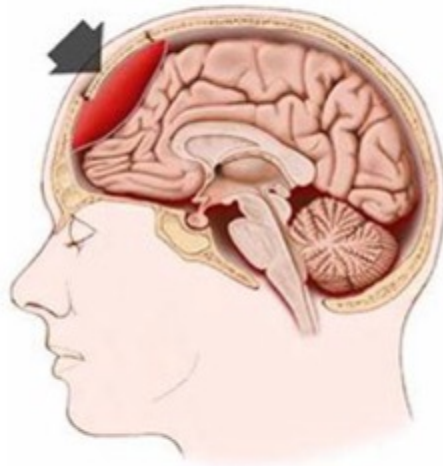
| Component tested              | Score |
|-------------------------------|-------|
| <b>Eye response</b>           |       |
| Eyes open spontaneously       | 4     |
| Eye opening to verbal command | 3     |
| Eye opening to pain           | 2     |
| No eye opening                | 1     |
| <b>Motor response</b>         |       |
| Obeys command                 | 6     |
| Localises pain                | 5     |
| Withdraws from pain           | 4     |
| Flexion response to pain      | 3     |
| Extension response to pain    | 2     |
| No motor response             | 1     |
| <b>Verbal response</b>        |       |
| Oriented                      | 5     |
| Confused                      | 4     |
| Inappropriate words           | 3     |
| Incomprehensible sounds       | 2     |
| No verbal response            | 1     |

- Mild TBI: GCS 13-15. Posttraumatic amnesia less than 1 day or not at all. Loss of consciousness less than 30 minutes or not at all.
- Moderate TBI: GCS 9-12. Posttraumatic amnesia 1-7 days. Loss of consciousness 30 minutes to 24 hours.
- Severe TBI: GCS 8 or less. Posttraumatic amnesia greater than 7 days. Loss of consciousness greater than 24 hours.

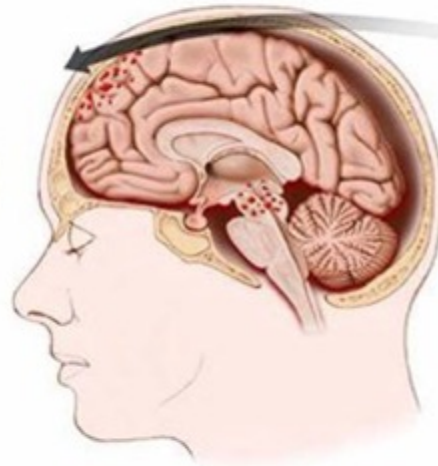
(<https://www.ncbi.nlm.nih.gov>)

# Mechanisms of Injury

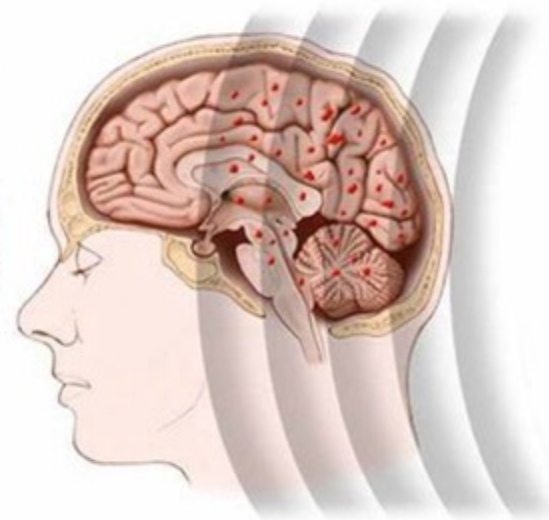
## Types of traumatic brain injury



Direct impact injury



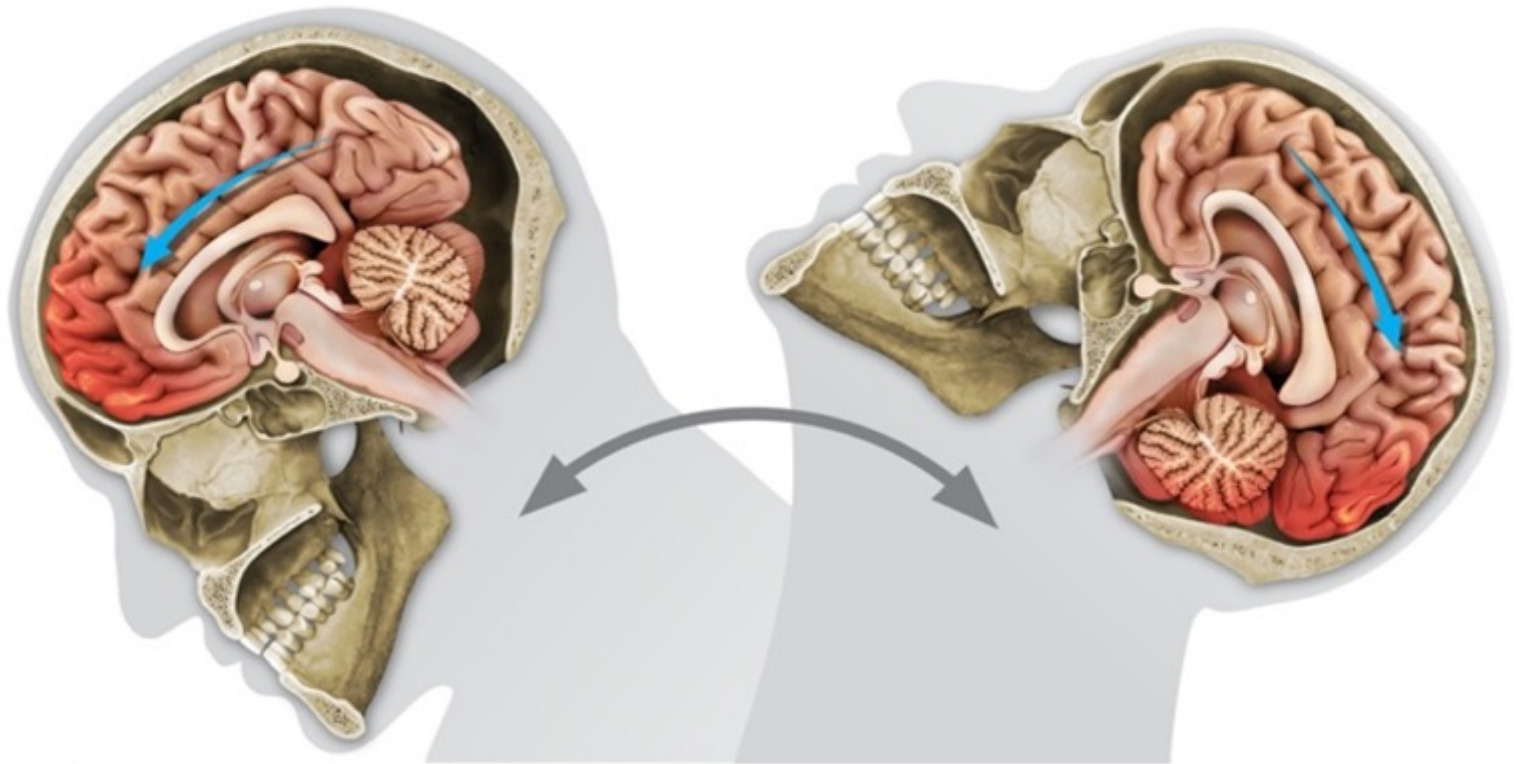
Acceleration-deceleration injury



Shock wave injury

# A COMMON TYPE OF INJURY

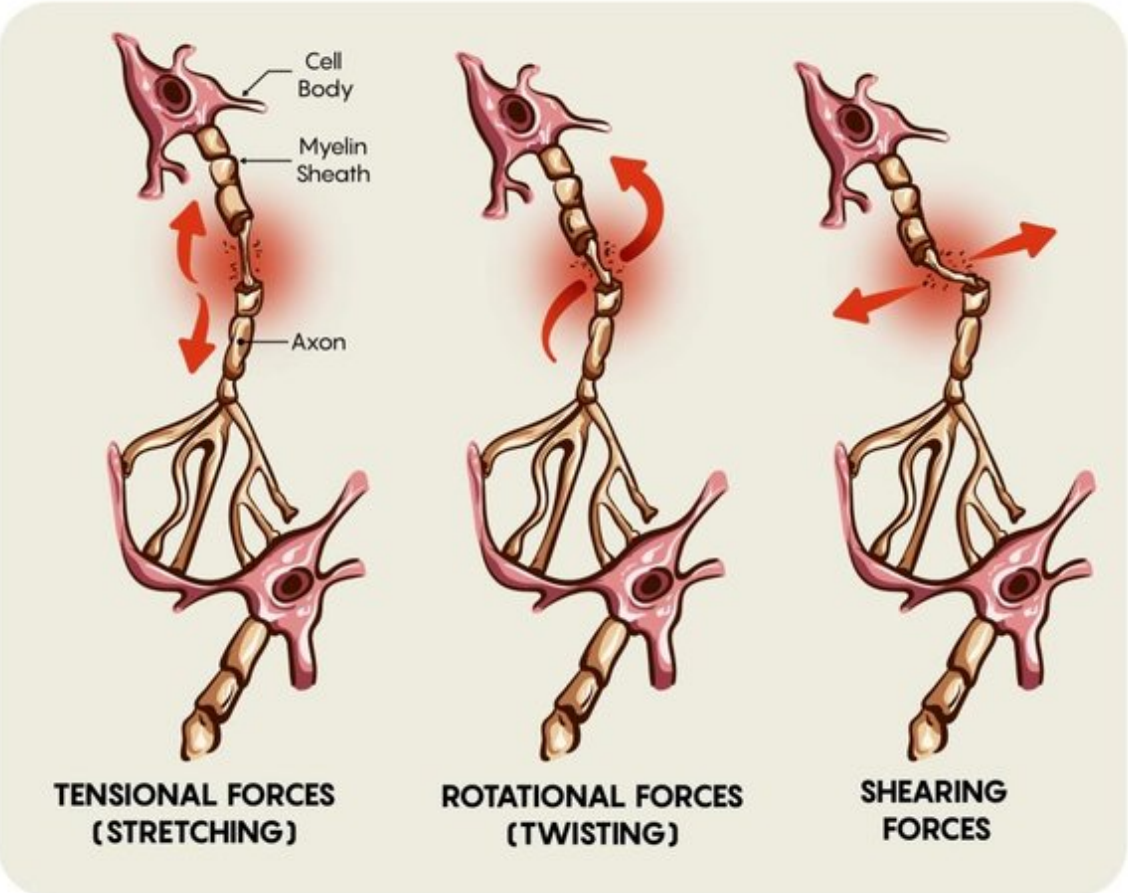
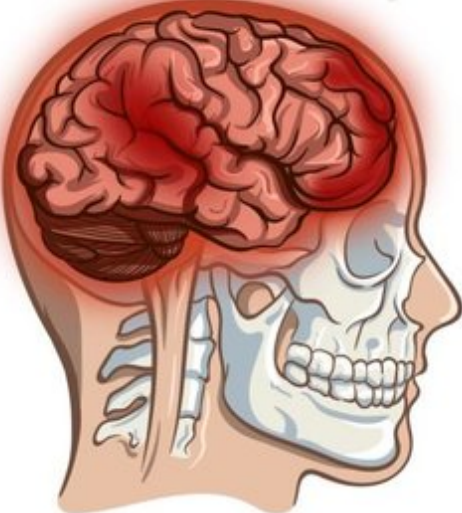
Coup-contrecoup injury



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# MOST COMMON INJURY IN CONCUSSION

## DIFFUSE AXONAL INJURY



# CONCUSSION SYMPTOMS

## Physical Difficulties

- FATIGUE
- Headaches
- Nausea +/- Vomiting
- Dizziness
- Balance problems
- Visual Problems
- Sensitivity to light
- Sensitivity to Noise
- Numbness/tingling

## Sleep Difficulties

- Drowsiness
- Trouble falling asleep
- Sleeping more than usual
- Sleeping less than usual

## Cognitive Difficulties

- Feeling mentally foggy
- Feeling mentally slowed down
- Concentration difficulties
- Memory difficulties

## Emotional Difficulties

- Irritability
- Sadness
- More emotional
- Nervousness

# COMMON NEUROLOGICAL TOOLS

- Head CT wo contrast
- CTA Head and Neck
- Brain MRI with DTI (diffusion tensor imaging) and SWI (Susceptibility-Weighted Imaging)
- EEG



# CHALLENGES IN RECOVERY

- Multiple co-existent Injuries – Prioritize
- Previous injury
- Other Medical / Health issues
- Mental Health / Substance Abuse
- Socioeconomic / Resources Available
- Supportive Environment

*Prolonged Recovery can take 6 months to a year or longer*



# POST-TRAUMATIC HEADACHES

- Herbal Supplements: magnesium, melatonin
- Antidepressant Medications: amitriptyline/nortriptyline, sertraline, duloxetine
- Seizure medications: topiramate, lamotrigine, divalproex, gabapentin
- Blood pressure medications: Propranolol, verapamil, amlodipine
- ? Calcitonin gene-related peptide (CGRP)
- Long-acting anti-inflammatories: Diclofenac, meloxicam, celecoxib
- Botox injections



# TBI/CONCUSSION IN OUR COMMUNITY

- Presently, most patients have ER or urgent care diagnosis and little or no follow up
- Minimal Self Care Education
- Maybe see PCP, perhaps neurology or PT
- Some are sent for advanced imaging



# OSIC CONCUSSION CLINIC ....COORDINATED AND COMPREHENSIVE CARE

- Concussion Specialist – Care Coordinator
  - Timely triage
  - Patient Education / Self Care
  - Establish diagnosis & Prioritization RX
  - Screen for necessary testing and additional specialists
  - Initiate therapeutic interventions
  - Coordination of care



# OSIC CONCUSSION CLINIC

## ...COORDINATED, INTEGRATED TEAM

- Chiropractic / Manual Therapy
- Nutritional Counseling
- Sleep Hygiene
- Neurology
- Physical Therapy
  - Vertigo / Primitive Reflex Integration
- Neuro-Optometry – Visual Function
- Psychological – PTSD/Anxiety/Depression
- Cognitive Therapy/Neuropsychology
- Neurosurgery
- Orthopedics
- PM&R



**Network of Professionals**  
**Systematic coordination as a Team**

# UTAH ORTHOPEDIC SPINE & INJURY CENTER



# UTAH ORTHOPEDIC SPINE & INJURY CENTER COMPREHENSIVE PROFESSIONAL SERVICES

- Acute Injury evaluation and management
- Second Opinions
- Surgical Consults
- Non-surgical Consults
- Subspecialty care managed and coordinated
  - Spine Surgery
  - Brain Injury
  - Knee/Shoulder Surgery
  - Physical Med & Rehab
  - Interventional Pain Management
  - Hand Surgery
  - Foot and Ankle Surgery
  - Neurology
  - Neuropsychology
  - Oral Surgery
  - Soft Tissue Injuries
  - Plastic Surgery
  - Pre and Post Op medical care

# UTAH ORTHOPEDIC SPINE & INJURY CENTER INTEGRATED SERVICES

- ALL IMAGING (we really want to order)
- Evaluation & Treatment
- Acute medication management
- Surgical Services
- Anesthesia, Surgery Center/Hospital and Surgical Equipment
- Spinal Pain injections
- Braces, splints, crutches
- Comprehensive Concussion Care
- Neuropsych Testing



# UTAH ORTHOPEDIC SPINE & INJURY CENTER MEDICAL-LEGAL SERVICES PROVIDED

- Record Reviews
- Case Evaluations
- IME
- Impairment Rating
- Life Care Planning by an MD
- Future Care Letters
- Complex case management
- All cases are supported throughout
- Medical Records provided at each visit



THANK YOU

## UtahOSIC

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