

Treatment of Injured Workers' Shoulder and Knee Injuries

Determining What Findings are WC Compensable

Difficult Job



Utah Experience



Knee Injury in injured worker

The other job...



Perhaps unique to Utah

Your job and mine

- Identify unique work related medical conditions or injuries which need treatment
- Provide necessary care
- Make all necessary efforts to return injured worker to pre-injury level
- Where this is not possible, facilitate alternative options of employment and/or long term care

The Challenge

- Provide quality and efficient care
- Meet the needs of your employer
- Meet the needs of the injured worker
- Meet the needs of injurer worker's employer
- Avoid waste
 - Unnecessary time lost from work
 - Unnecessary or inappropriate medical care
 - Can include diagnostics, treatments, addictive drugs

Sounds easybut!



Best Care : Best Provider



NFL Experience

First Question:

- Knee and Shoulder Conditions that arise from Industrial exposure occur from:
 - Acute Trauma
 - Repetitive Cumulative Trauma
 - Natural progression of disease **unrelated** to industrial exposure
 - **Aggravation** of pre-existing disease the result of acute or repetitive cumulative trauma from industrial exposure

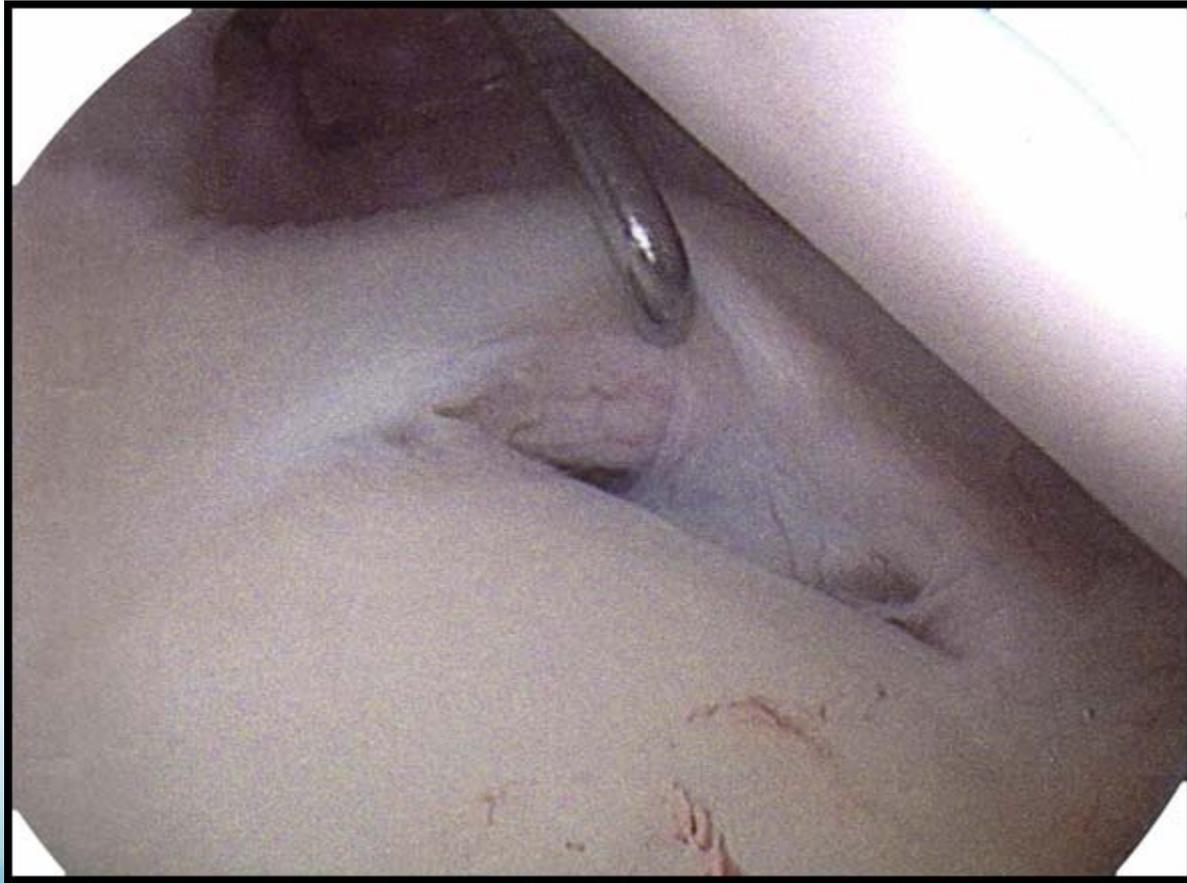
Acute Trauma

- This is the easiest of all
- If it is broken and an industrial accident was responsible
- Define the nature and extent of the damage
- Perform or accomplish appropriate repair/healing
- Complete rehabilitation
- Return to prior work if possible

Acute Trauma Shoulder

- SLAP lesion
- Rotator Cuff tear
- Fracture
- Dislocation

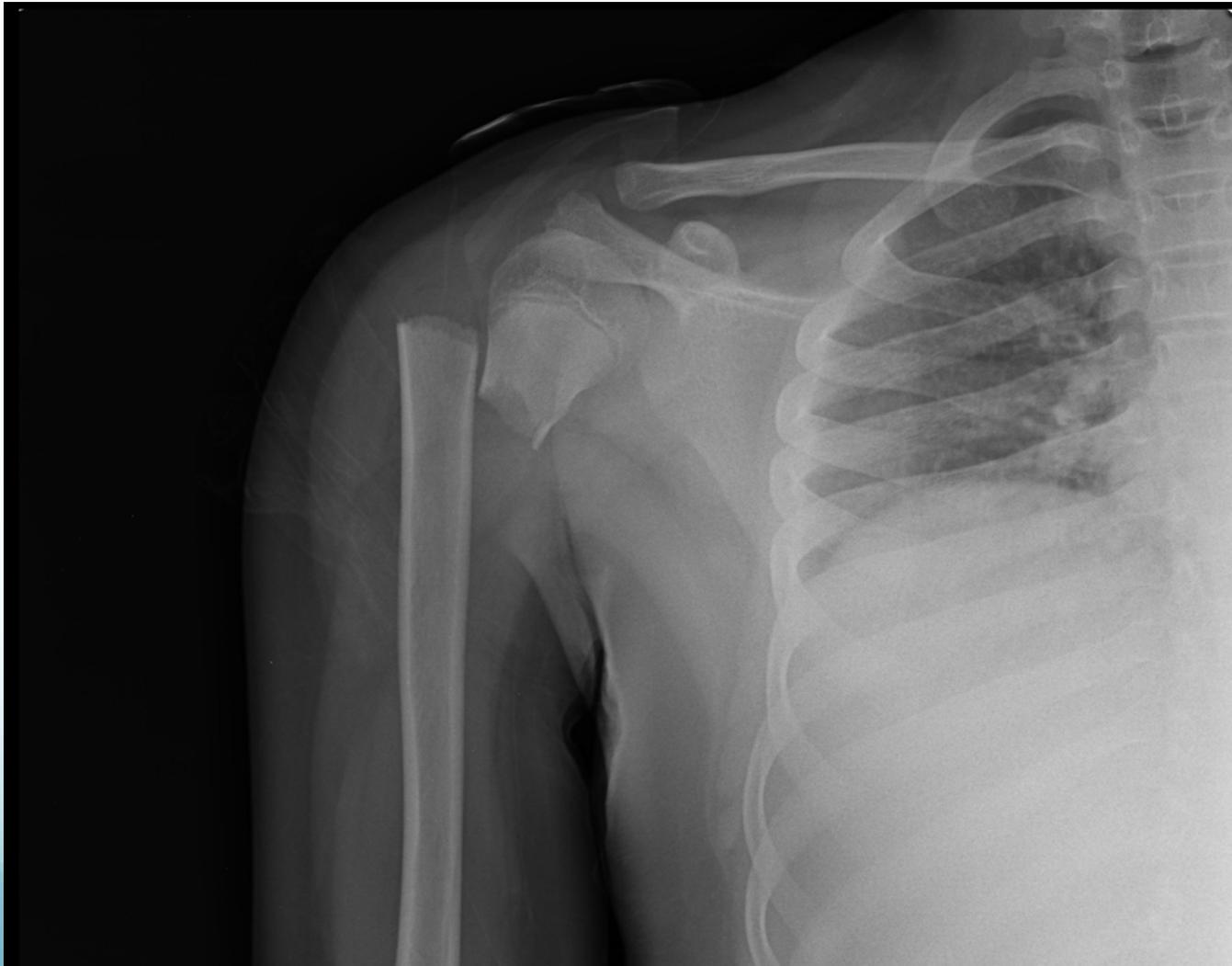
SLAP Lesion



Rotator Cuff Tear



Shoulder fracture



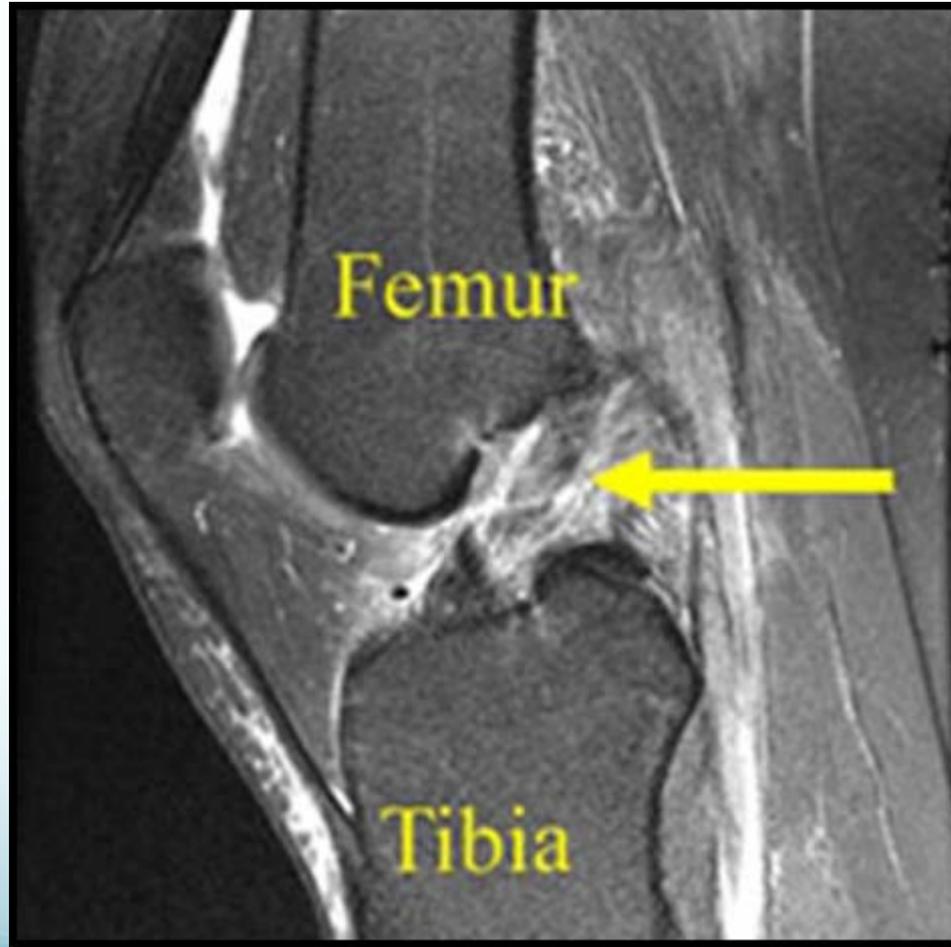
Dislocation



Acute Trauma Knee

- ACL tear
- MCL tear
- Meniscal Tear
- Tibial Plateau fracture

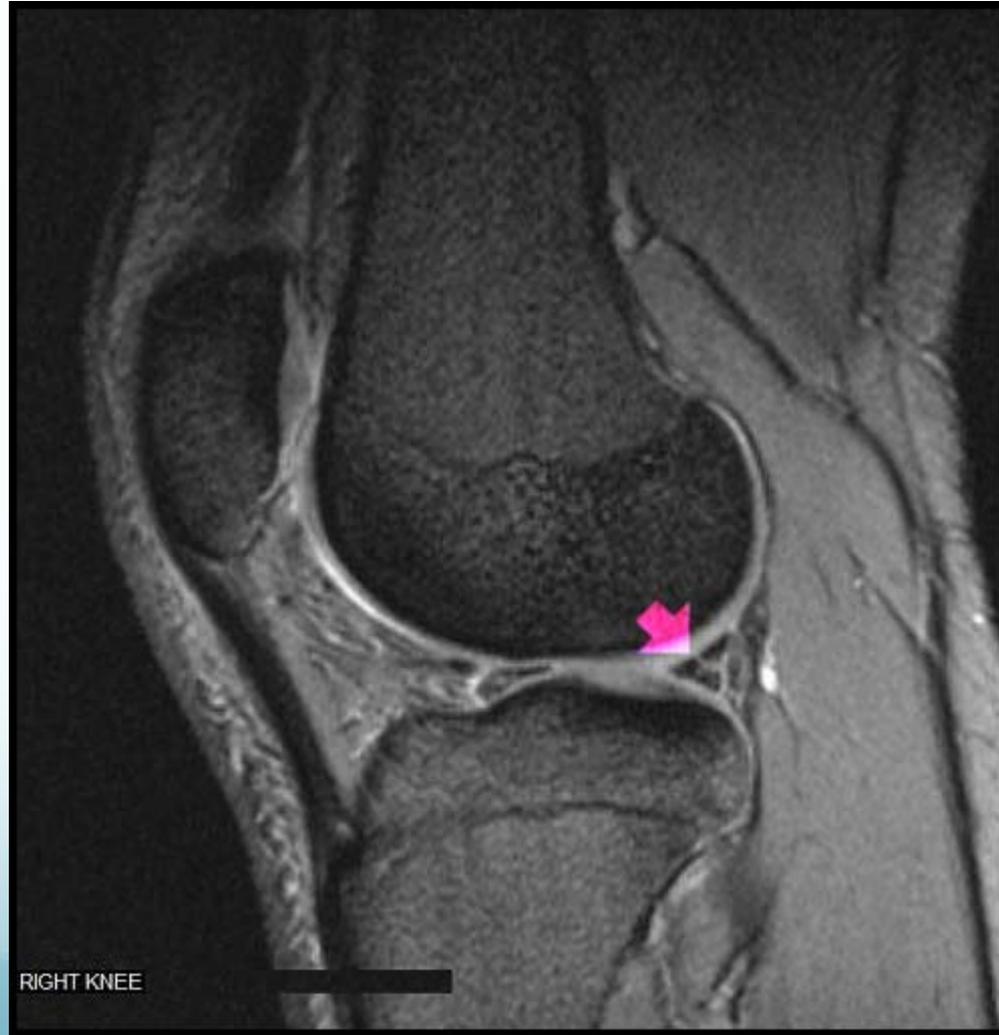
ACL Tear



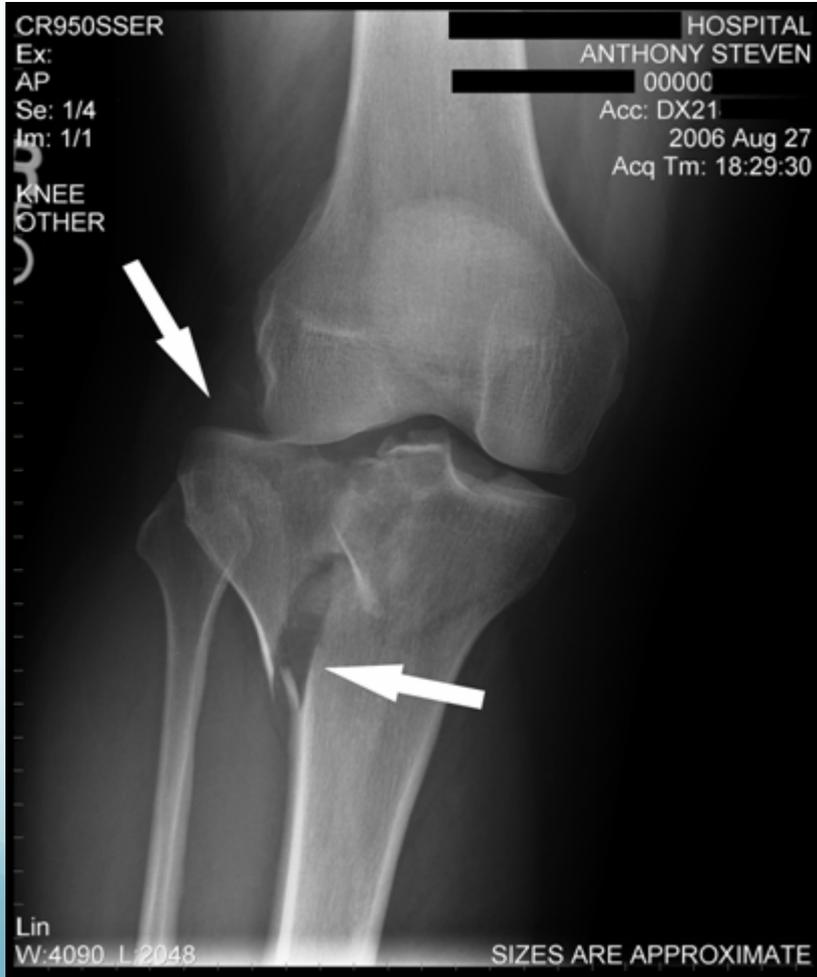
MCL Tear



Meniscal tear



Tibial Plateau Fracture



Injury vs Illness

- Challenge to define what is right
- Illness: **Not** responsibility of employer
- Natural progression of pre existing disease: **Not** responsibility of employer
- Aggravation of pre existing disease or condition: **may be** responsibility of employer if described “injury” was **extra-ordinary**.

Difficult Knee

- Aging patient
- X-ray or MRI evidence of degenerative joint disease
- Not uncommon to also have degenerative tear of meniscus
- Acute Work related injury (usually appears incidental)

Vocabulary

- The words we use can define responsibility
- Be careful what you say
- Important at work and at home 😊
- Take a careful history
- Check the records
- Patients and providers have short memories

Transient aggravation

- Pre existing condition **made temporarily worse** as a result of activity of employment. After brief period of treatment condition returns **to previous level of symptoms**
- Note: didn't return to normal.....however no responsibility for **not being normal**

Exacerbation of Pre Existing condition

- Previous disease, minimally symptomatic
- **Extra ordinary** industrial exposure provokes worsening of condition which **DOES NOT return** to pre injury state despite medical care
- May provoke need for **extra ordinary treatment**
- Osteoarthritic Knee ultimately needs total knee arthroplasty and never returns to work.

Apportionment

- Treatment **(sometimes)**
- Permanent impairment or disability
- Would have occurred the result of natural progression of pre existing disease
- Occurred the result of incidental “injury” in industrial environment
- Occurred the result of extra ordinary industrial exposure

Other considerations:

- Apportion future medical care
- Be careful of the conclusions you draw.
- Acute tear of lateral meniscus today may provoke need for major knee arthroplasty 10-15 years from now.
- Who should be responsible?

Technology can help

- New verses old
- Pre existing vs the result of industrial injury
- Examples
 - Rotator cuff tear
 - Bony impingement
 - AC arthropathy
 - Rotator cuff degenerative tissue changes
 - Acute tear

New vs Old

- **Acute knee injury**

- Acute meniscal tear
- Acute hemarthrosis
- Bone contusion on MRI

- **Old knee injury**

- Degenerative appearance on MRI
- No effusion
- No acute changes

Knee conditions



Nightmare

- For physician
- For claims manager
- For patient

Onset

- Worker bent over to pick up a piece of paper
- Felt “pop” or nothing at all followed by soreness, swelling, difficulty pivoting or squatting
- Xrays and MRI demonstrate pre-existing disease yet patient was not symptomatic
- “Trauma” was minimal, not extra ordinary or not at all

Treatment

- No improvement with rest/time
- Made worse by exercise therapy
- Cortisone injection temporary improvement
- Arthroscopy: torn mensicus, moderate osteoarthritis
- Partial meniscectomy and limited debridement of arthritic surfaces

Outcome Worst Case

- Difficult slow recovery
- Pain, swelling
- Treatment with rest, time, physical therapy, analgesics,
- Deteriorating condition
- Increased pain and impairment
- Consideration of total knee replacement

Apportionment

- Treatment
- Impairment
- Need for future treatment
- After all that....the knee becomes infected provoking need for two stage revision and months of iv antibiotics.....
- Bad things do happen ☹️

Avoidance:

- **Early recognition** by treating physician of significance of pre-existing disease
- Careful identification of potential “**straw that broke the camel’s back**”
- Only thing worse than an injured worker is an **angry impaired worker**

Repetitive Cumulative Trauma

- AC Arthropathy
- Shoulder impingement syndrome
- Rotator Cuff Tear

AC Joint

- AC joint often becomes progressively arthritic the result of overhead activities
 - Dry wall hanger
 - Painter
 - Pusher/puller worker
 - Heavy manual labor

AC Arthropathy



AC Treatment

- Local injection
- Work modification avoid overhead activity
- Surgical resection distal end of clavicle
- Recovery in several weeks
- No residual disability

Shoulder Impingement

- Sub Acromial impingement
- Rotator cuff chronic abrasion of tendon of cuff against acromion
- Leads to pain, limitation of motion and weakness of rotator cuff
- Night pain is common

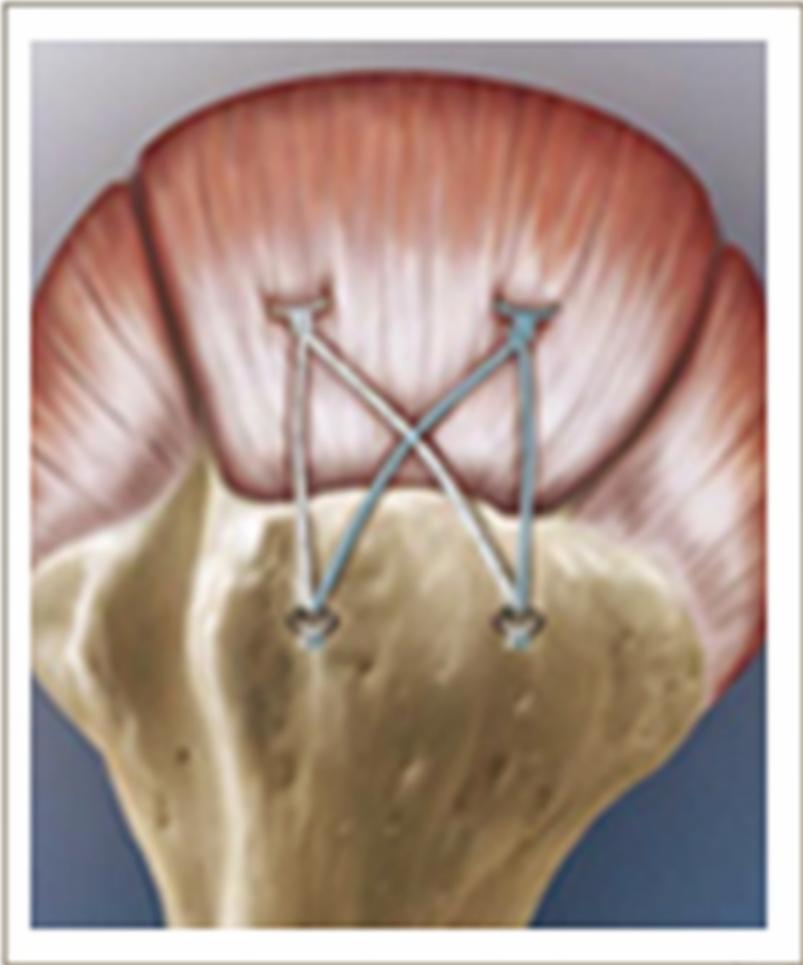


Treatment

- Alter overhead activity
- Physical rehabilitation may help in early stages
- Local sub acromial injection/ NSAID
- In severe cases surgical sub acromial decompression may be necessary
- Recovery anticipated with no residuals
- Assumes Rotator Cuff is intact

Rotator Cuff Tear

- Repetitive use
- Age
- Long standing impingement
- Failure of Rotator Cuff due to:
 - Repetitive use
 - Excessive load
 - Tissue failure



Natural progression of disease **unrelated** to industrial exposure

- Osteoarthritic knees
- No extra ordinary exposure at work place
- Condition deteriorates over time
- Treatment becomes necessary
- No industrial responsibility

Aggravation of pre-existing disease the result of acute or repetitive cumulative trauma from industrial exposure

- Osteoarthritic knees
- High impact **exposure** repeated over extended time period
- Onset of symptoms provokes medical care
- Apportion treatment?
- Apportion impairment?

AAOS

Clinical practice guidelines

- Self-management exercise: Yes! Strong
- Weight loss: Suggest! Moderate evidence
- Acupuncture: No! Strong evidence
- Electrotherapeutic modalities: Unable inconclusive
- Manual Therapy: Inconclusive

- Medial Un-loader brace: Inconclusive
- Lateral wedge insoles: No: Moderate strength
- Glucosamine/Chondroitin: No! Strong Evidence
- NSAID: Yes! Strong Evidence
- Analgeics: Inconclusive
- Intra-articular Steroids: Inconclusive

- HA Injections: No! Strong Evidence
- PRP/ Growth factor Injections: Inconclusive
- Needle Lavage: No! Moderate evidence
- Arthroscopic Debridement: No! Strong
- Arthroscopic Meniscectomy: No! Inconclusive
- HTO/Valgus Osteotomy: Limited
- Free floating medial arthroplasty: No! Never!



Anatomy and Appearance of Chondral Injuries in knee joint

- Grade I
- Grade II
- Grade III
- Grade IV

Tire Analogy:

- Normal tread “0”
- Blister or slight surface breakdown II
- Spots where the rubber is peeling off the core III
- Exposed core IV

Outerbridge classification:

- **grade 0:** normal cartilage;
- **grade I:** cartilage with softening and swelling;
- **grade II:** a partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 cm in diameter;
- **grade III:** fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm;
- **grade IV,** exposed subchondral bone.

Chondroplasty

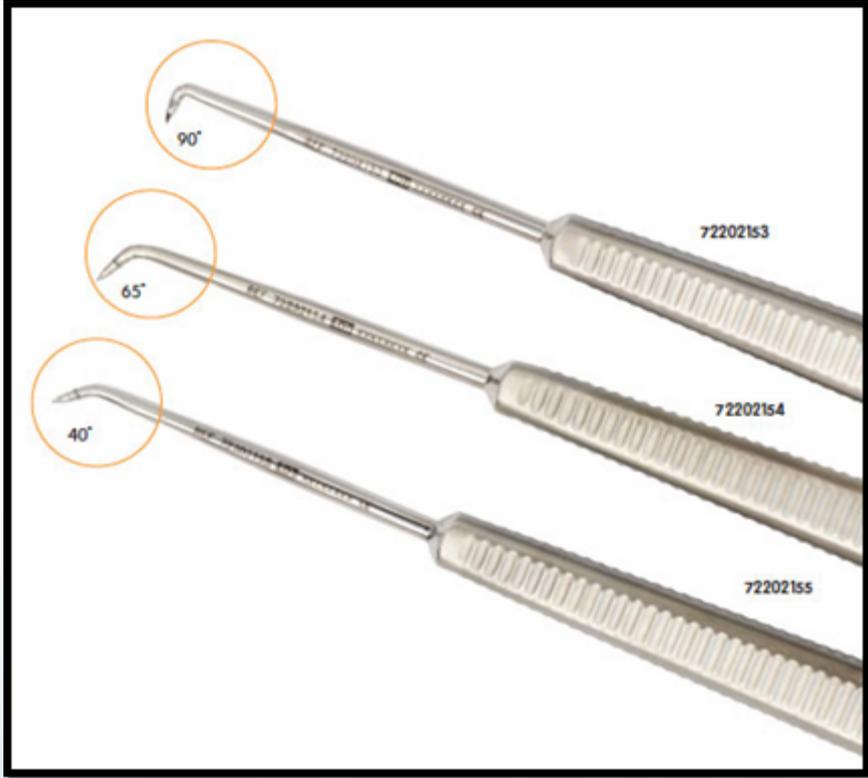
Grade II and III Lesions

- Indication for Procedure
- Technique
- After Care
- Future Expectations

Micro fracture

Grade IV

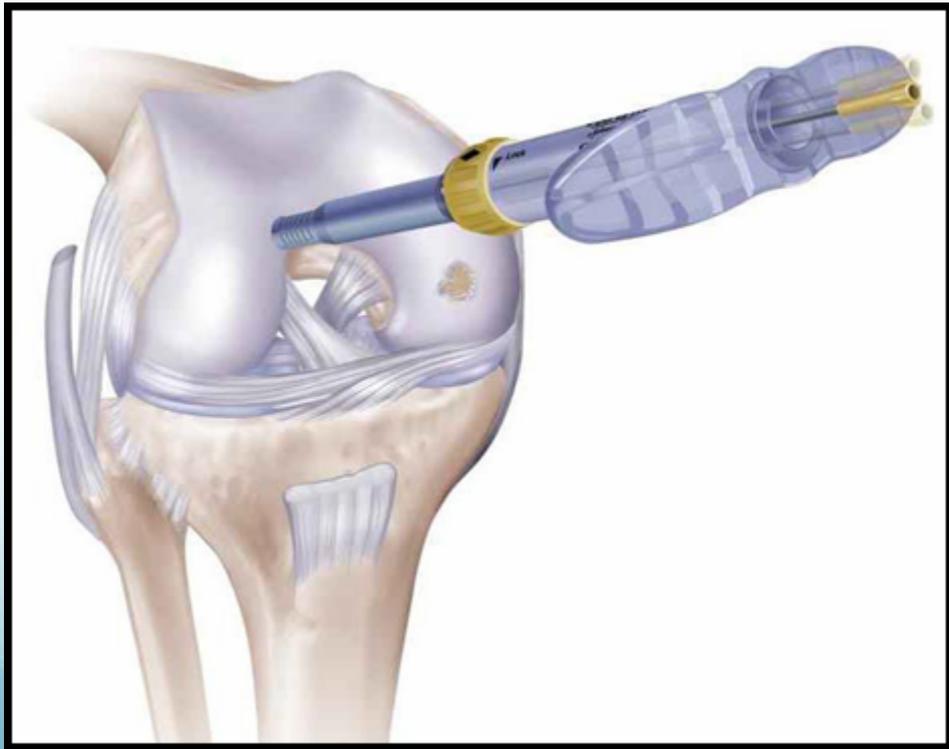
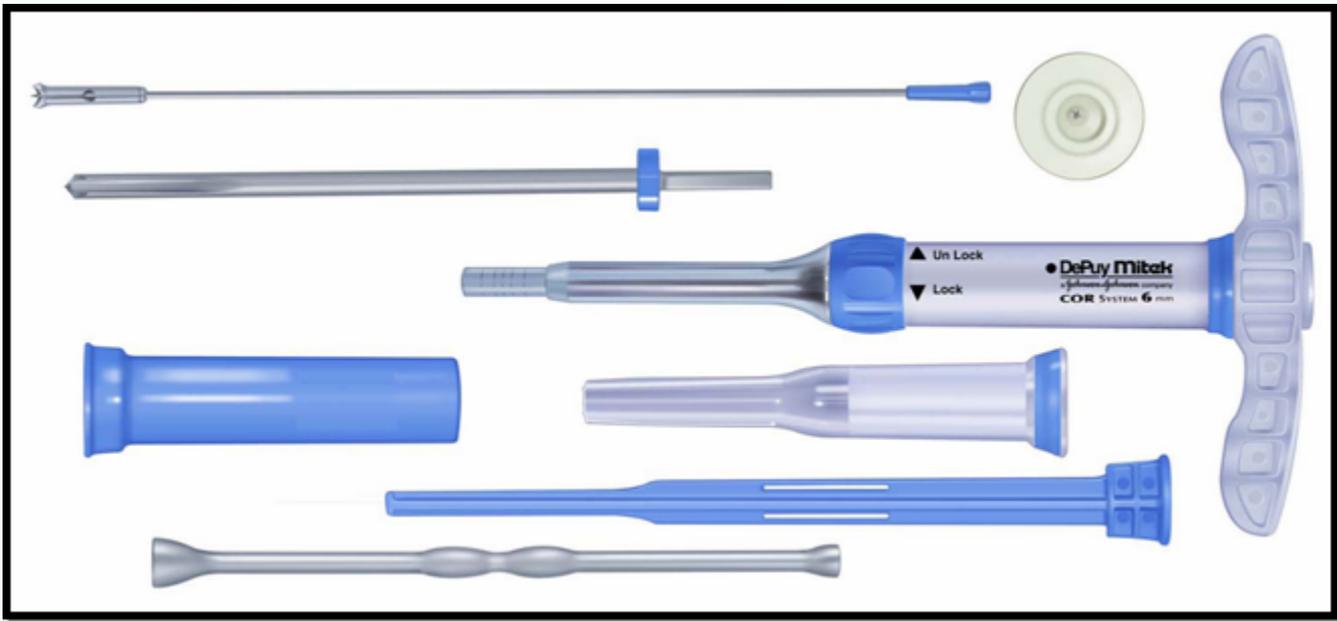
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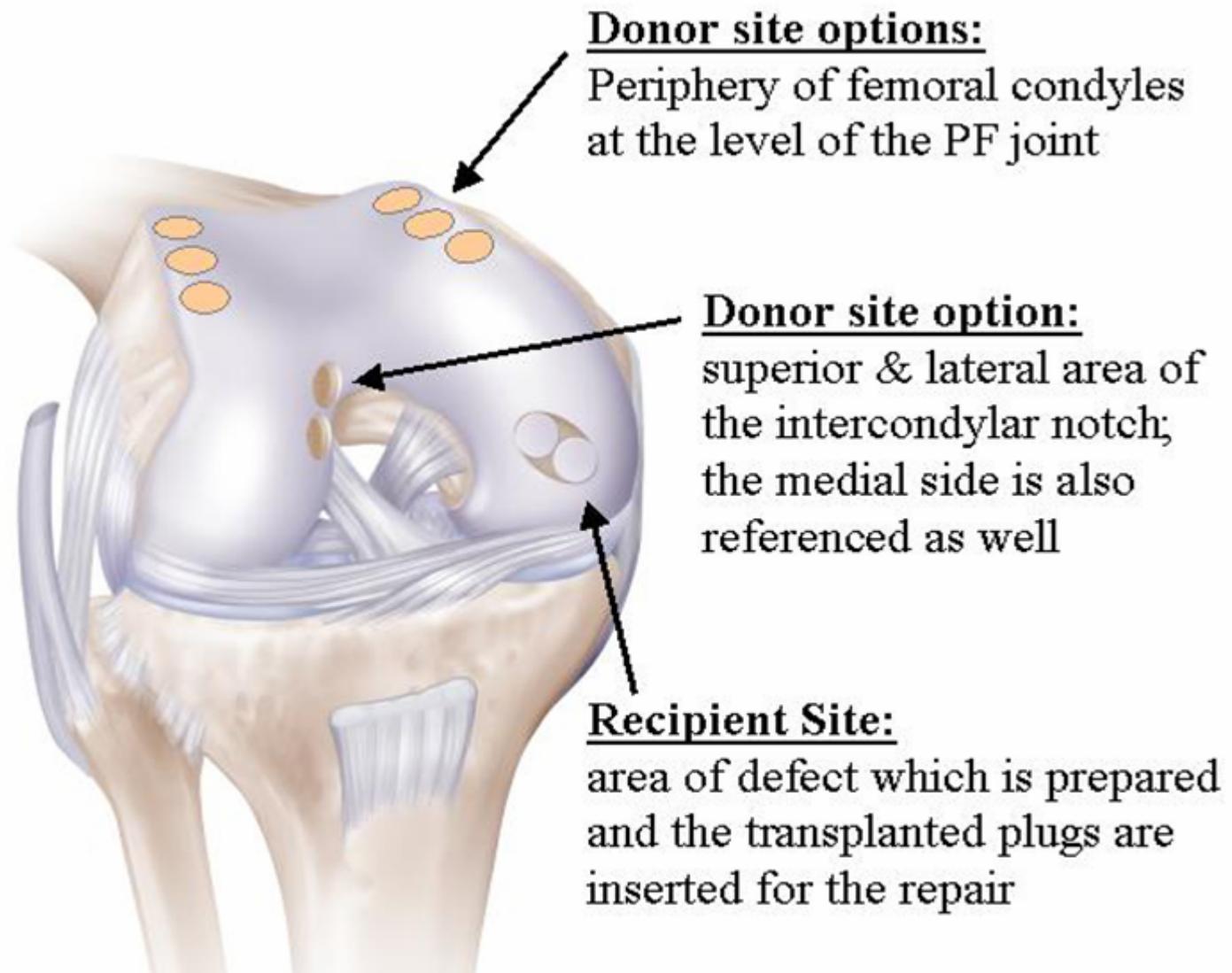


Oats Procedure

Grade IV Greater than 1 square centimeter

- Indications for procedure
- Technique
- After Care
- Future Expectations





Donor site options:

Periphery of femoral condyles
at the level of the PF joint

Donor site option:

superior & lateral area of
the intercondylar notch;
the medial side is also
referenced as well

Recipient Site:

area of defect which is prepared
and the transplanted plugs are
inserted for the repair

ACI Procedure

Very Large Grade IV

- Indications for procedure
- Technique
- After Care
- Future Expectations

Large fresh Osteochondral Allograft

- Indications for procedure
- Technique
- After Care
- Future Expectations





Partial Knee Resurfacing

- Indications for procedure
- Technique
- After Care
- Future Expectations

Partial Pre-op X-Rays



Partial Post-op X-Rays

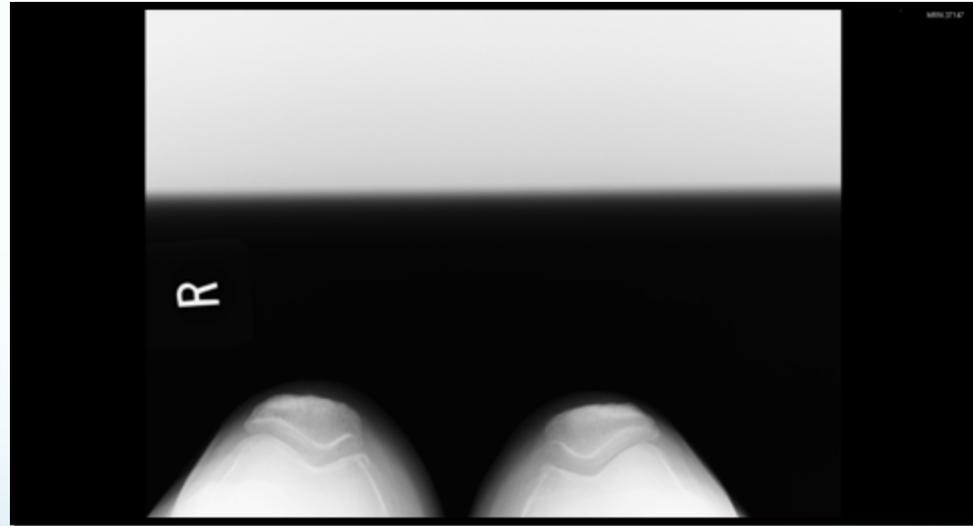


Total Knee Replacement

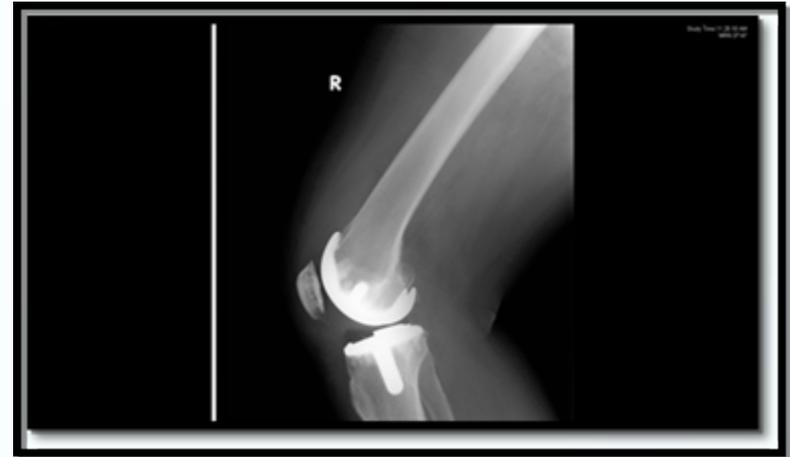
Total Resurfacing vs. Replacement

- Indications for procedure
- Technique
- After Care
- Future Expectations

Total Knee Pre Op X-Rays



Post op X-Rays



Thank you!!