

MANAGING KNEE PROBLEMS IN PRIMARY CARE

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CONTENT

- **Anatomy**
- **Referral**
- **History**
- **Examination**
- **Future**
- **Practical**
- **Questions**

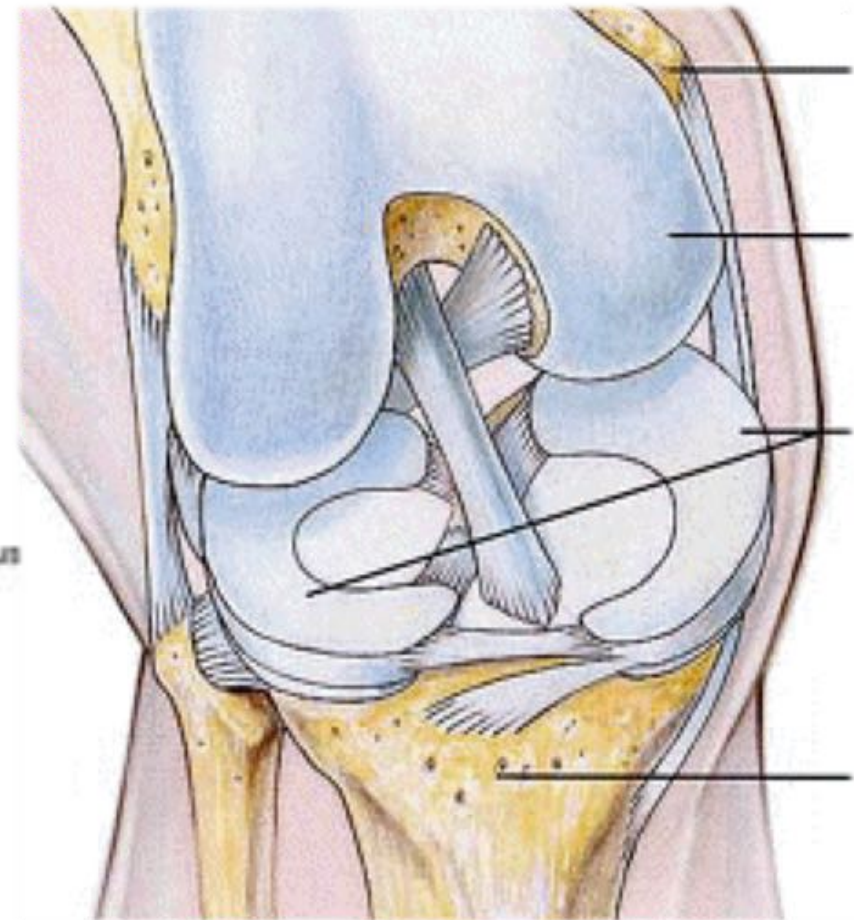
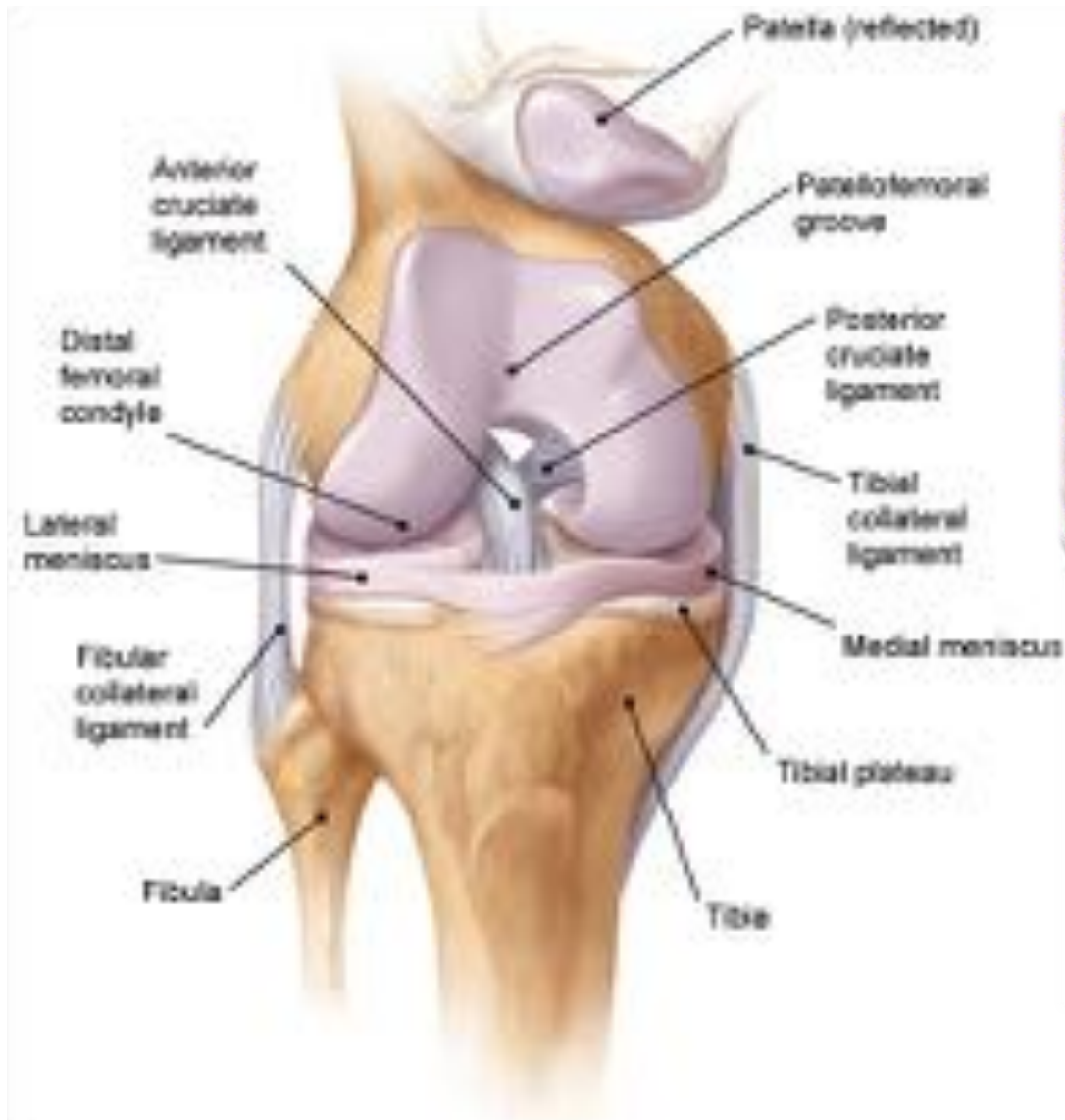


JAMES HAHNEL

- **James Hahnel**
- **Yorkshire Born and Bred**
- **Newcastle University**
- **Surgical training in Yorkshire**
- **Orthopaedics since 2002**
- **Consultant Orthopaedic Surgeon since 2011**
- **Specialist in Hip and Knee Surgery (first time and revision)**

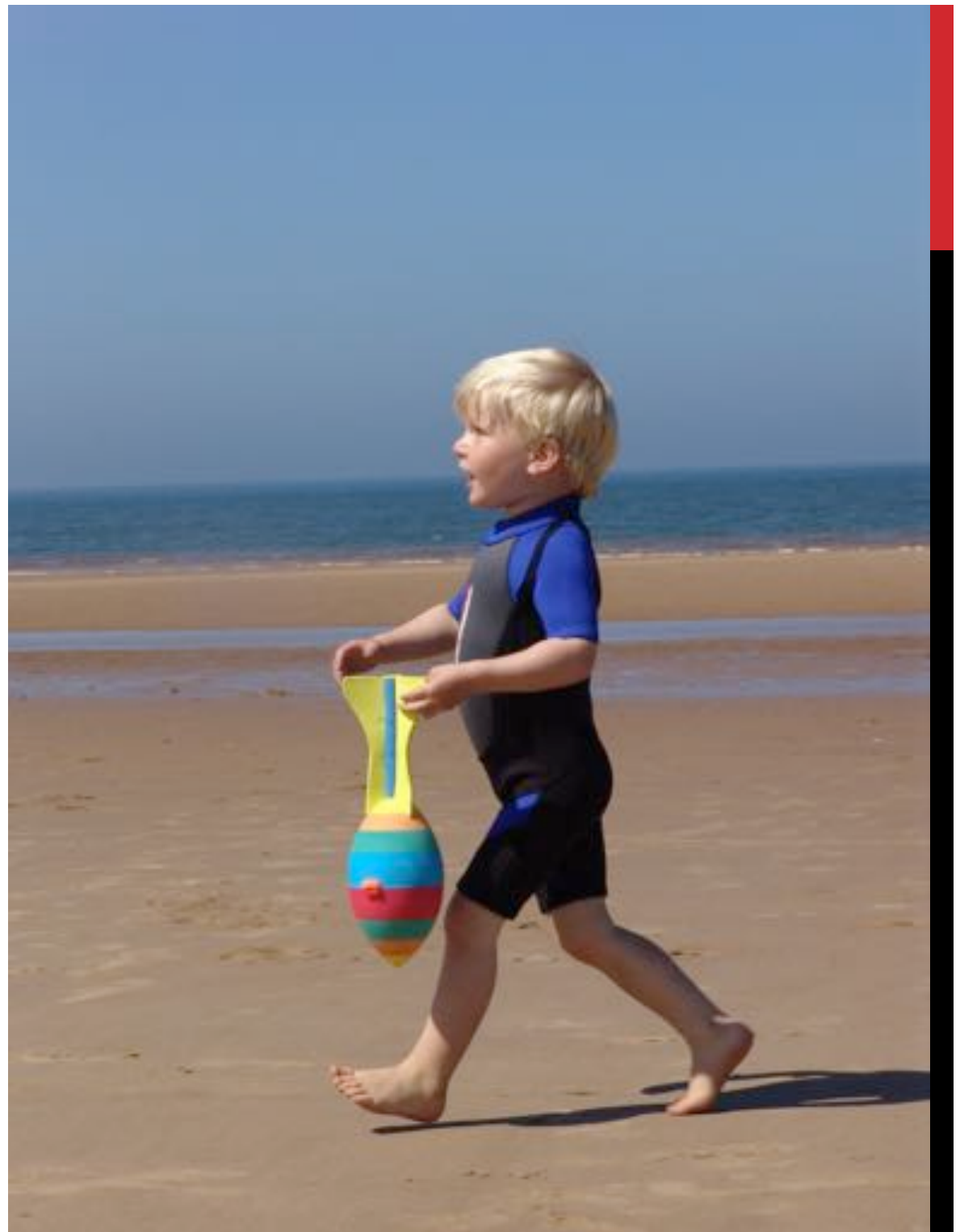


ANATOMY OF THE KNEE



REFERRAL

- **15 minute slot**
- **Time for a well informed decision**
- **Xray request**
- **Referral letter information**



THE ORTHOPAEDIC SURGEON



HISTORY

80%

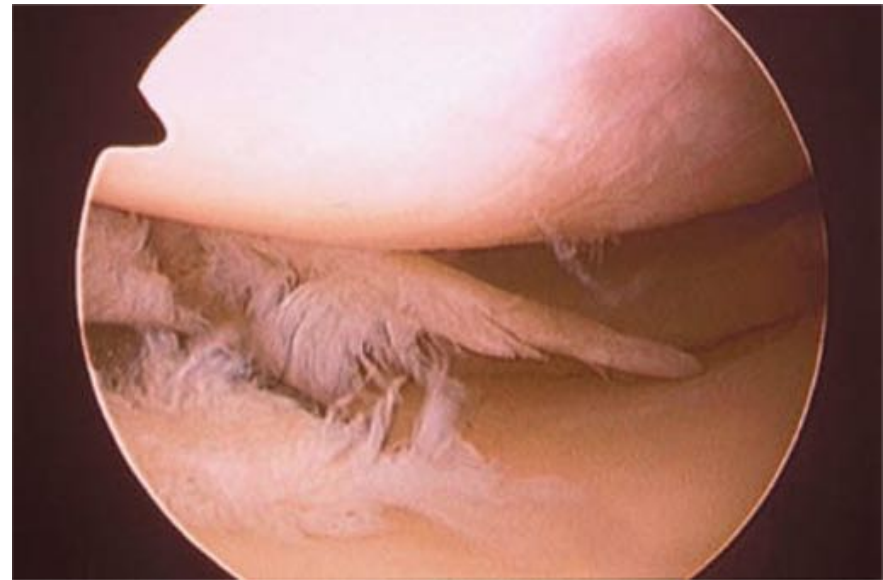




HISTORY – THE KEY QUESTIONS

- **Age**
- **Speed of onset**
 - “How long have you had the pain?”
 - “Did it come on one day or over a few weeks?”
- **Precipitating factor:**
 - “Did you hurt your knee?”
 - “Did you twist awkwardly on it?”
- **Site of pain – one finger / one spot**
 - keep on asking the question
- **Mechanical Symptoms**
 - Catching / Clicking / Locking / Instability

ELDERLY PATIENTS



Torn Flap



ELDERLY PATIENTS



THE ESSENTIALS

- Gradual onset pain – often years
- Constant unremitting nagging pain
- Polyarthropathy
- Walking distance <100 yards
- Walking aids
- Wakes from sleep
- Requires regular analgesia

THE EXTRAS

- Previous knee injection – Effect
- Inflammatory arthropathy

FINISHING SCHOOL

- Referred pain from hip?
- Differentiate from vascular cause

ELDERLY PATIENTS

THE ESSENTIALS

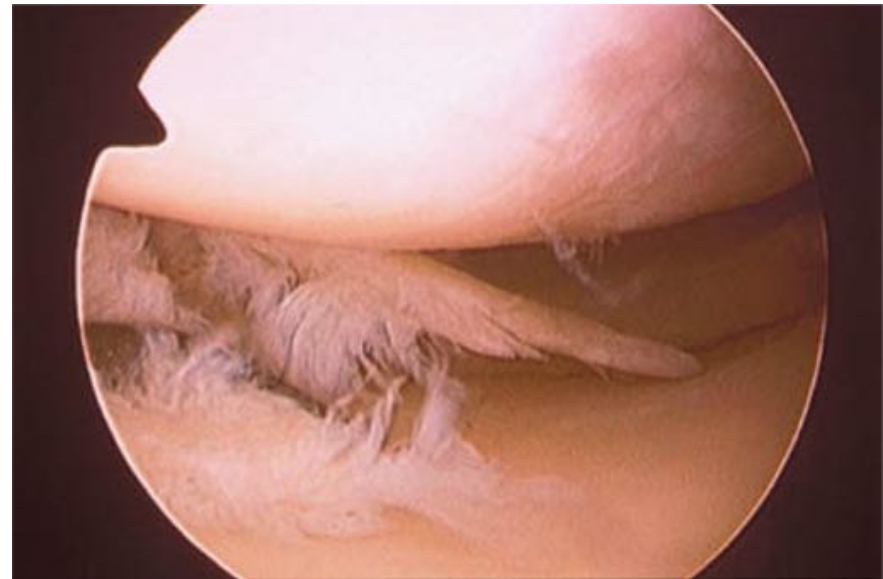
- History of twisting injury to the knee
- Recent sudden onset of pain – often months:
 - Clicking / Catching
 - Pseudolocking
 - Pseudoinstability
 - Swelling
- Single joint
- Good days and bad

THE EXTRAS

- Previous knee injection – ineffective
- May have arthritic symptoms too

FINISHING SCHOOL

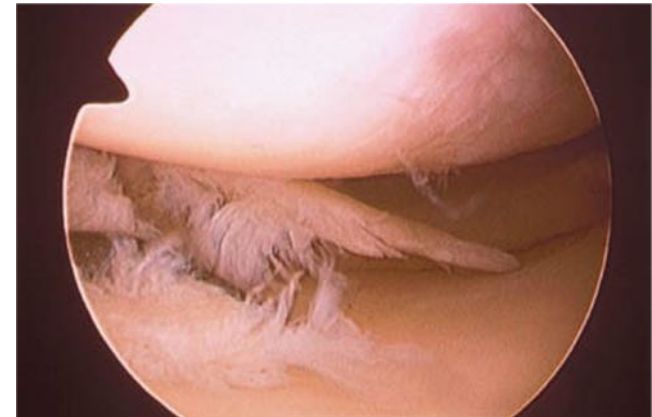
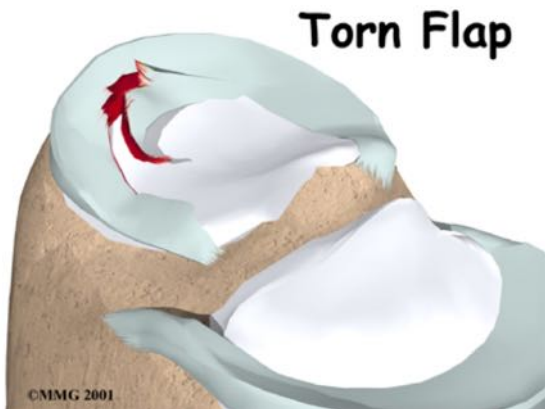
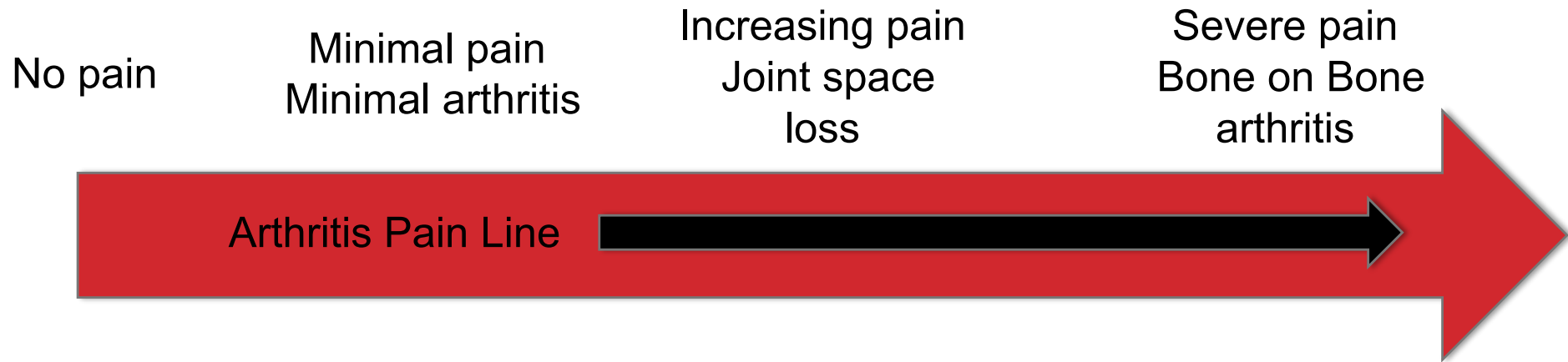
- Differentiate from loose body in knee



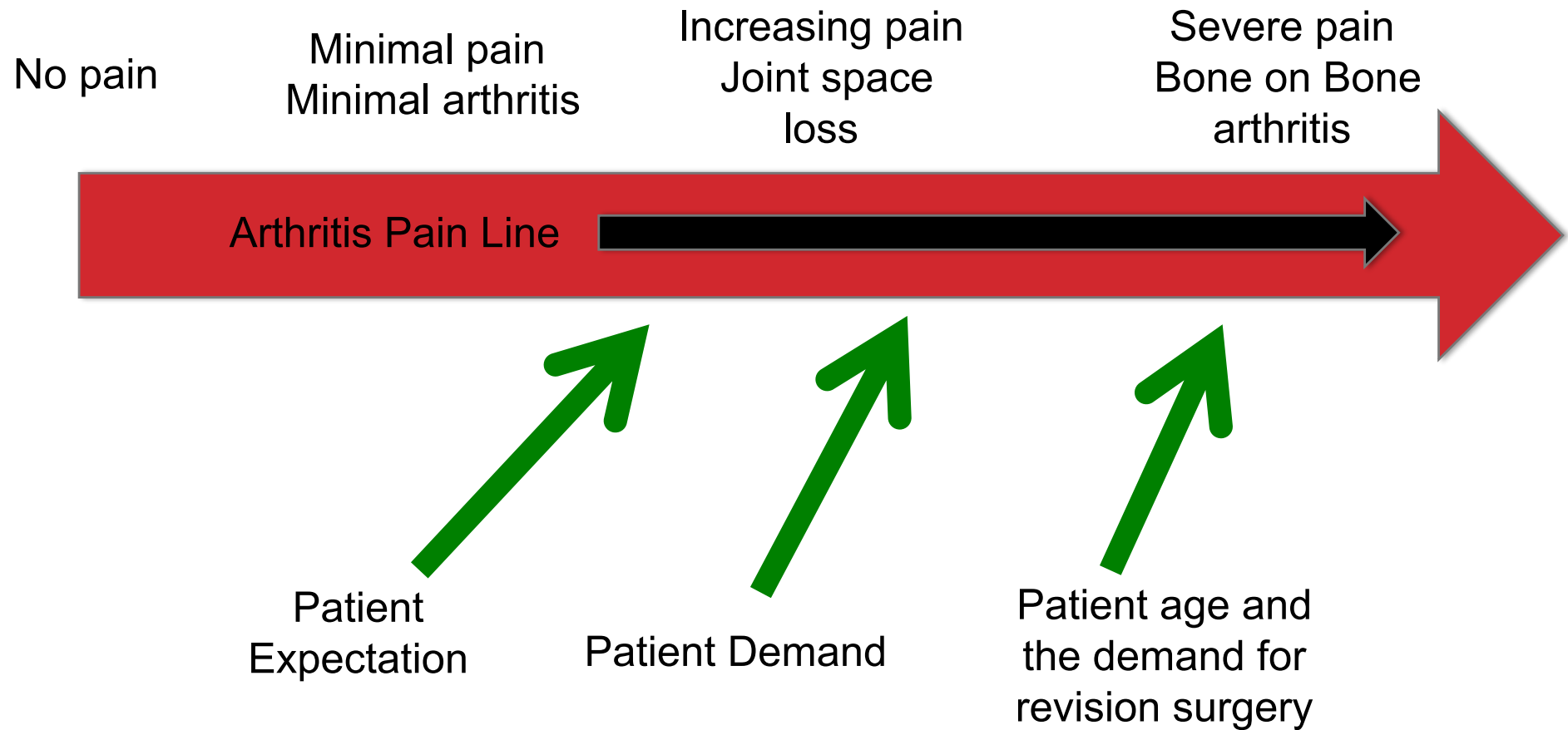
Torn Flap



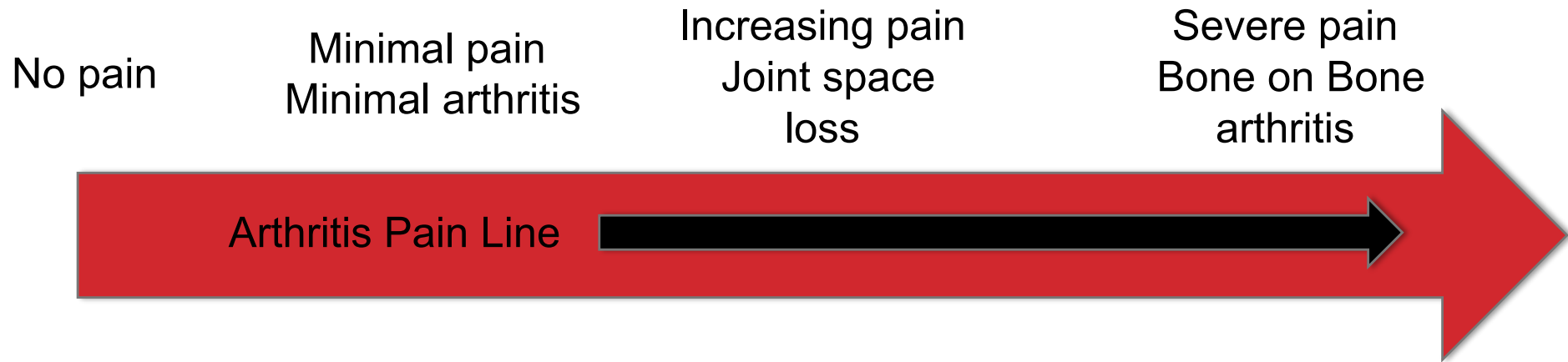
THE ARTHRITIS SEVERITY LINE



THE ARTHRITIS SEVERITY LINE



THE ARTHRITIS SEVERITY LINE



Mercedes



Skoda



ELDERLY PATIENTS – KEY QUESTIONS

- **Hip Pathology**
 - “Do you get groin pain?”
 - “Who ties your shoe laces and cuts your nails?”
- **Back Pathology (more pertinent to hip arthritis)**
 - “Do you get pain in both legs?”
 - Buttock pain
 - L5 and S1 common disc prolapses
- **Patient expectations from surgery**

BUPA FORM

Section B: ESSKA framework	Section C: standard knee arthroscopy
Is the history and examination compatible with a degenerative meniscus lesion? <input type="checkbox"/> Yes <input type="checkbox"/> No	Proposed surgery and codes:
Has the patient had an MRI scan? <input type="checkbox"/> Yes <input type="checkbox"/> No	What are the indications for surgery:
Has the patient had standard weight bearing X rays? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Anterior Cruciate Ligament
Do they confirm a degenerative meniscal tear? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Instability
Please confirm that the knee is either normal or has only minimal osteoarthritis on imaging. <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Posterior Cruciate Ligament
Please see: Kellgren Lawrence 0-I on X-Ray or equivalent MRI for more information	<input type="checkbox"/> Laxity
	<input type="checkbox"/> Isolated meniscal lesion
	<input type="checkbox"/> Concurrent meniscal injury
	<input type="checkbox"/> Knee locking or giving way
	<input type="checkbox"/> Loose body
	<input type="checkbox"/> Other symptoms, please detail in section D
	<input type="checkbox"/> Other, please detail in section D
	Past arthroscopies on same knee? <input type="checkbox"/> Yes <input type="checkbox"/> No
	If yes, please give dates:
	Duration of symptoms:
Has the patient had non-operative treatment (+/-injection) for at least three months? <input type="checkbox"/> Yes <input type="checkbox"/> No	Non-operative management: <input type="checkbox"/> Yes <input type="checkbox"/> No
Has this treatment failed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Physiotherapy? <input type="checkbox"/> Yes <input type="checkbox"/> No
If you've ticked yes to all the above, go to section E	Duration of therapy:
	Please detail other therapies in section D

BUPA FORM

In other words:

- **If patient is aged over 35 with meniscal type knee pain +/- arthritis treat with physiotherapy +/- single steroid injection for three months (unless acutely locked knee)**
- **XRAY them first to ensure not arthritis (weight bearing AP, Rosenberg and lateral views)**
- **Only then consider MRI scan and refer if still symptomatic**

But bear in mind, we:

- **don't see radiology images from other hospitals**
- **Ultrasound is a waste of time for meniscal tears.**

MANAGEMENT PATHWAY

- **Conservative non operative:**
 - Injections and pain killers
 - Walking aids
 - Weight loss
 - Physiotherapy
 - Lifestyle modification
- **Surgical:**
 - Arthroscopy – BUPA framework good rationale
 - Joint Replacement

INJECTIONS

- **80mg depomedrone with 10mls 0.5% chirocaine**
- **Hyaluronic Acid injections for grade 3 or less**

- **Nearly always from lateral side under patella. Green needles**
- **Sterile technique - Infection does happen.**

- **If lasts less than 4-6 months – don't repeat**

PHYSIOTHERAPY + WT LOSS



NUMBERS OF JOINT REPLACEMENTS PERFORMED

Summary of key facts about joint replacement during the 2016 calendar year

Hips



recorded on the NJR since April 2003

101,651 replacement procedures

↑ 3.5%
(98,211 in 2015)

60%

average ages:



67.6 69.8



Diagnosis

Knees



recorded on the NJR since April 2003

108,713 replacement procedures

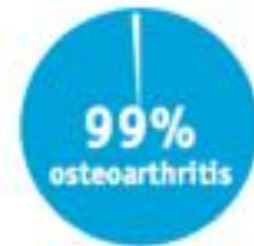
↑ 3.8%
(104,695 in 2015)

56%

average ages:



69.2 69.6



Diagnosis

WHAT DOES A JOINT REPLACEMENT INVOLVE?

After the procedure

- Physiotherapy on the ward.
- Typical stay 2 days (discharge once safe)
- Physiotherapy post discharge
- Furniture walking by 2 weeks
- Independent walking by 6 weeks
- Follow up at 6 weeks and 1 year



PATIENT MOTIVATION

6 weeks post TKR right side – 6 months post TKR left side



OUTCOMES – PROMS DATA

Decentralised preop and 6 month data collection

PROMS Data for knee replacements – Apr 17- Mar 18

- **EQ-5D index scores – 82.1% improvement**
- **EQ-VAS scores – 58.9 % increase in general health**
- **Oxford scores 93.6% improvement in patients condition**

Problems with PROMS

- **Data collected too early – should be 1 year**

WHAT DIFFERENT TYPES OF IMPLANTS EXIST

- Knees



OUTCOMES – NJR DATA 2018

Brand ¹	Number of knee joints	Median (IQR) age at primary	Percentage (%) male	Time since primary					
				1 year	3 years	5 years	7 years	10 years	14 years
All total knee replacements	977,488	70 (63-76)	43	0.41 (0.40-0.42)	1.55 (1.52-1.57)	2.20 (2.17-2.24)	2.70 (2.66-2.74)	3.43 (3.37-3.48)	4.54 (4.40-4.67)
Nexgen	149,050	70 (63-76)	43	0.38 (0.35-0.41)	1.43 (1.37-1.50)	2.18 (2.09-2.27)	2.83 (2.73-2.95)	3.72 (3.57-3.88)	4.79 (4.44-5.18)
PFC Sigma Bicondylar Knee	323,605	70 (64-76)	43	0.38 (0.36-0.41)	1.40 (1.35-1.44)	1.92 (1.87-1.97)	2.25 (2.19-2.32)	2.69 (2.62-2.77)	3.36 (3.18-3.56)
Triathlon	94,800	70 (63-76)	43	0.48 (0.43-0.53)	1.53 (1.44-1.63)	2.11 (2.00-2.23)	2.52 (2.37-2.67)	3.22 (2.95-3.52)	
Vanguard	62,649	70 (63-76)	42	0.33 (0.29-0.38)	1.45 (1.34-1.56)	2.17 (2.02-2.33)	2.60 (2.41-2.80)	3.45 (2.94-4.05)	

All unicompartmental knee replacements	110,078	63 (56-70)	49	1.08 (1.02-1.15)	4.27 (4.14-4.40)	6.59 (6.42-6.76)	8.76 (8.55-8.98)	12.23 (11.93-12.53)	17.85 (17.07-18.66)
Oxford Partial Knee	61,988	64 (57-71)	52	1.04 (1.05-1.22)	4.00 (3.83-4.17)	6.08 (5.87-6.30)	8.05 (7.79-8.32)	11.44 (11.07-11.82)	17.19 (16.15-18.28)
†Preservation	1,522	62 (56-69)	55	2.37 (1.72-3.27)	7.76 (6.52-9.23)	11.36 (9.85-13.07)	14.28 (12.60-16.17)	17.17 (15.31-19.23)	24.47 (21.65-27.59)
Sigma HP (Uni)	8,905	63 (55-70)	57	0.77 (0.60-0.98)	3.22 (2.82-3.68)	4.68 (4.13-5.31)	5.56 (4.87-6.35)		
Triathlon Uni	1,024	61 (54-69)	53	1.54 (0.91-2.58)	5.15 (3.79-6.98)	7.84 (5.95-10.30)	9.20 (6.99-12.05)		

HOW DO YOU KNOW IF A SURGEON WILL DO A GOOD JOB

- High Volume Centre
- High Volume Surgeon
- Good support network
- Personal recommendation -testimonials
- Objective evidence –CQC . NHS choices website – [personal website](#)

The image is a screenshot of a website for Mr. James Hahnel, a Consultant Hip, Knee and Trauma Orthopaedic Surgeon. The website has a dark header with the surgeon's name and title. Below the header is a blue navigation bar with links for 'Home', 'About Mr. J. Hahnel', 'Consultation Venues', 'Patient Information', 'Medicolegal Services', and 'Useful Links'. The main content area features a photo of Mr. Hahnel on the left and a section titled 'Clinical Outcomes for Joint Replacements' on the right, with a sub-note 'accurate April 2016'. The text under the title explains that clinical outcome data shows survivorship of hip or knee replacements in the short and long term, useful for surgeons and patients.

Mr. James Hahnel
Consultant Hip, Knee and Trauma Orthopaedic Surgeon

Home About Mr. J. Hahnel Consultation Venues Patient Information Medicolegal Services Useful Links

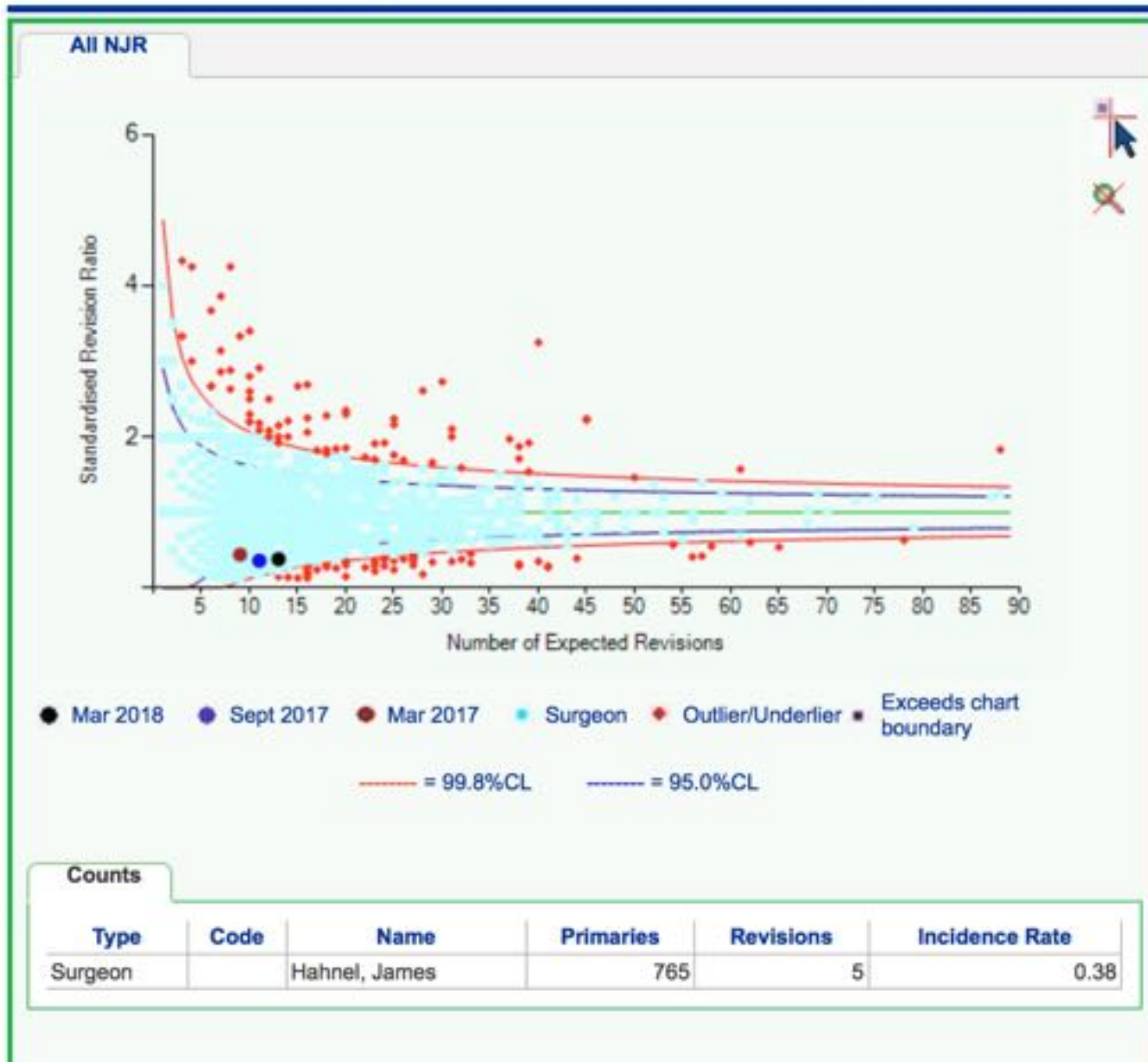
Clinical Outcomes for Joint Replacements accurate April 2016

Clinical outcome data in short is a set of data that shows the survivorship of a hip or knee replacement both in the short and long term. It is useful for surgeons to examine their own practice but also useful for patients in choosing and gaining confidence in their surgeon.

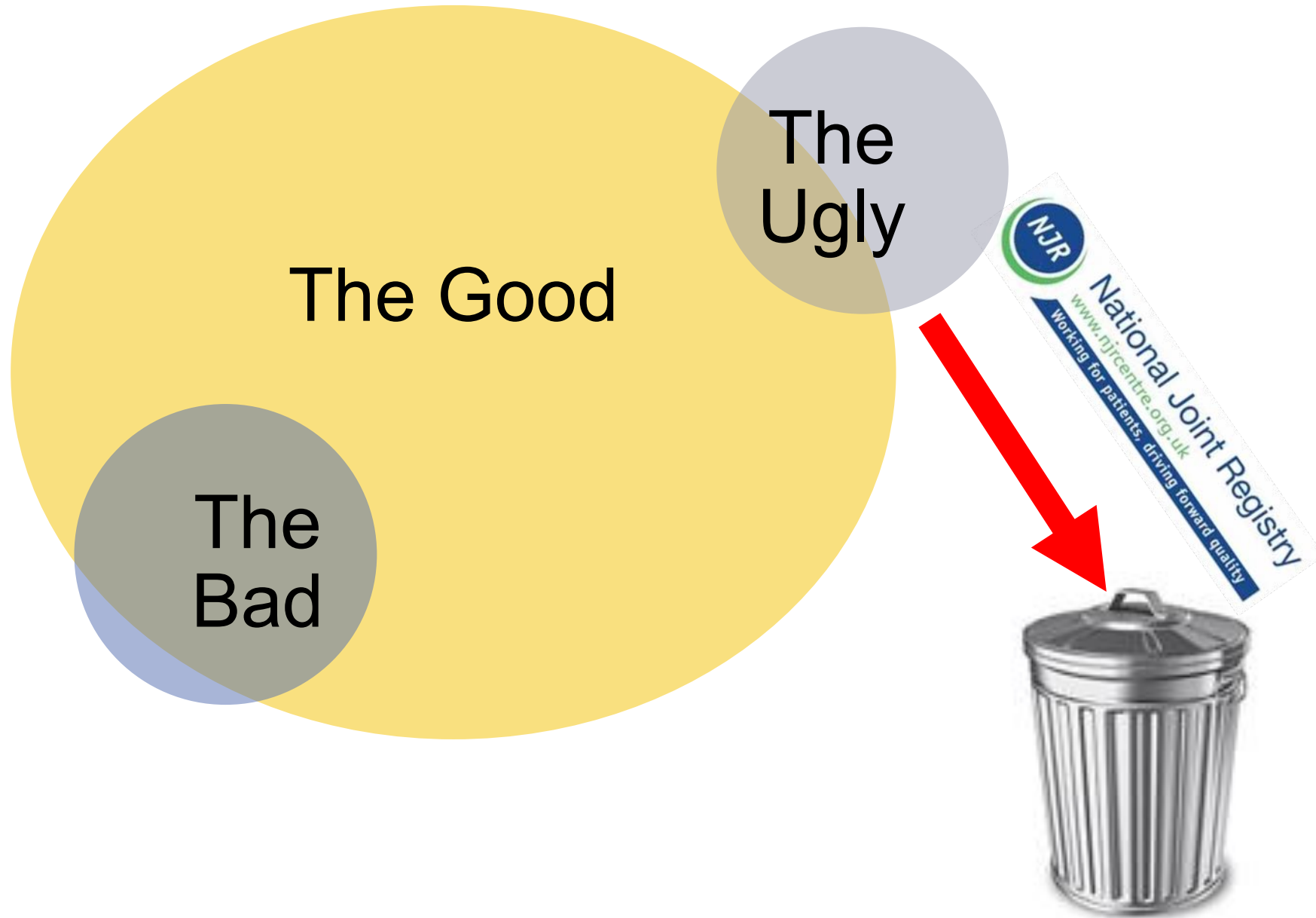
MY PERSONAL DATA

Hahnel, James - Standardised Revision Ratio Knees

Period: All NJR; Part: Activity; Applied Filters: Knee - All (Primary Procedure). Lead Surgeon



ADVANCEMENTS IN IMPLANT TECHNOLOGY?



THE FUTURE? ROBOTIC SURGERY - IT'S HERE



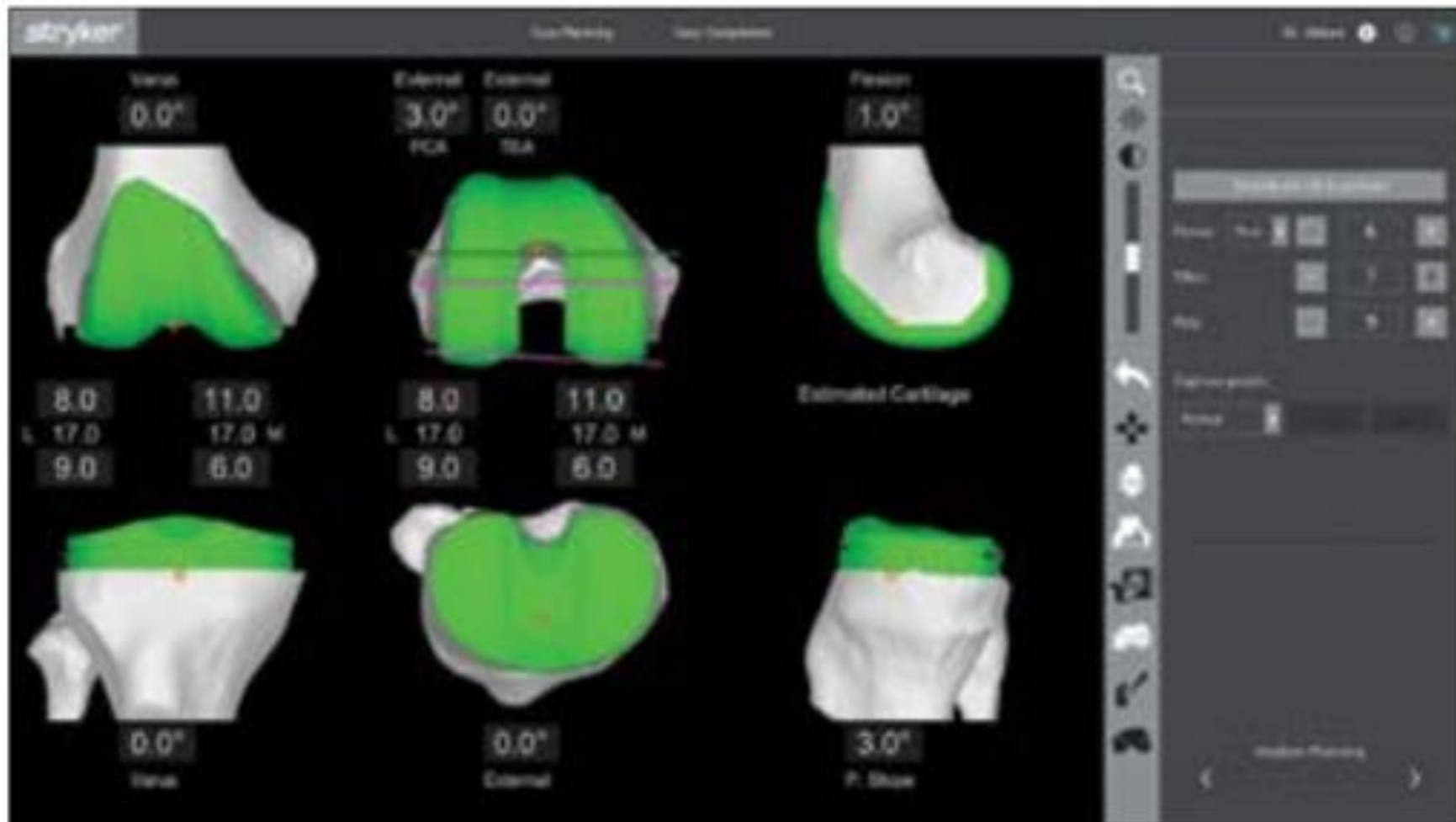
ROBOTIC SURGERY – THE FUTURE?

- New to the market place
- Accuracy
- Reproducibility
- Soft tissue balancing
- Still using same tried and tested implants
- Availability – Leeds Nuffield



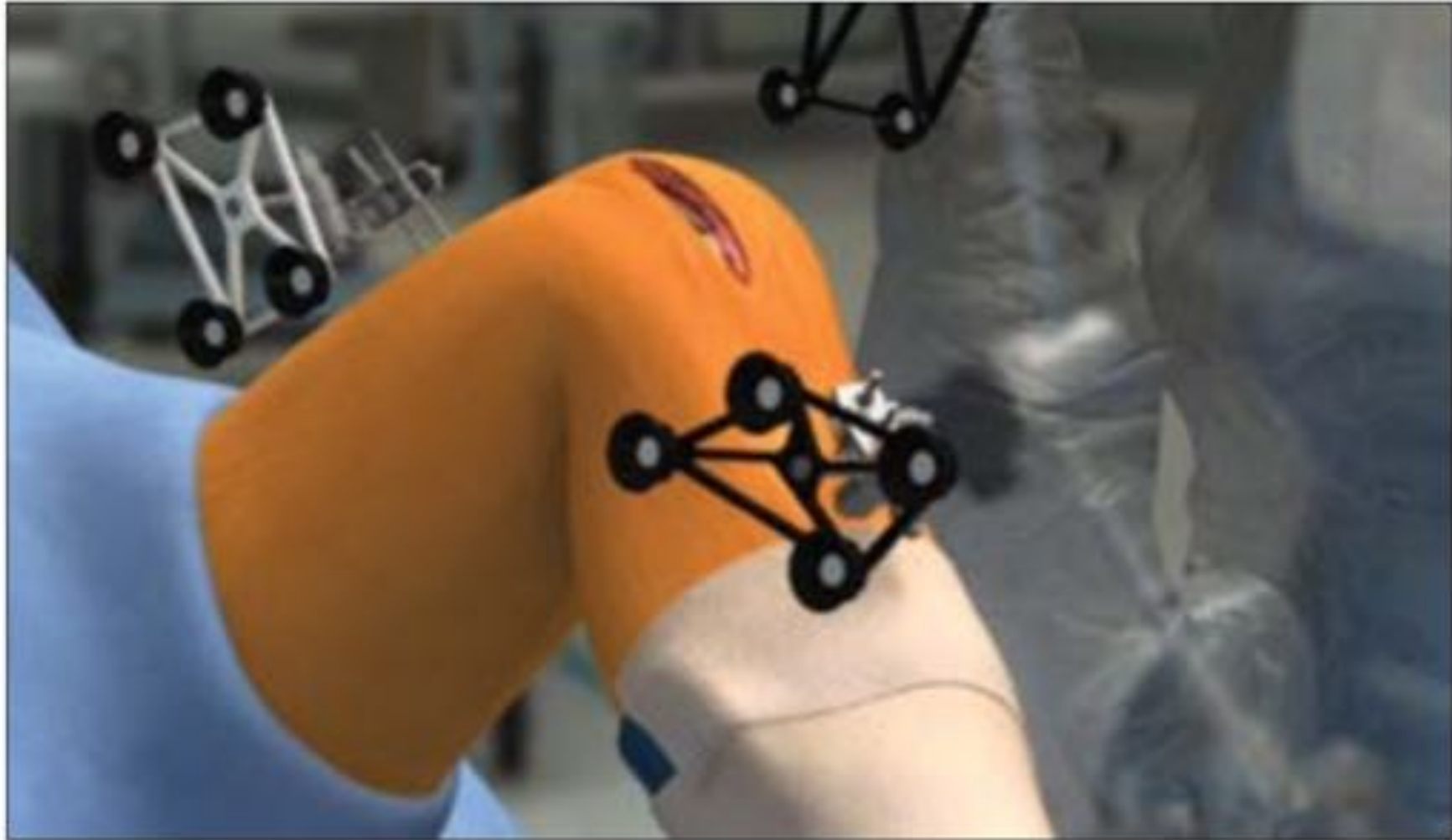
ROBOTIC SURGERY -MAKO

Allows Preoperative planning



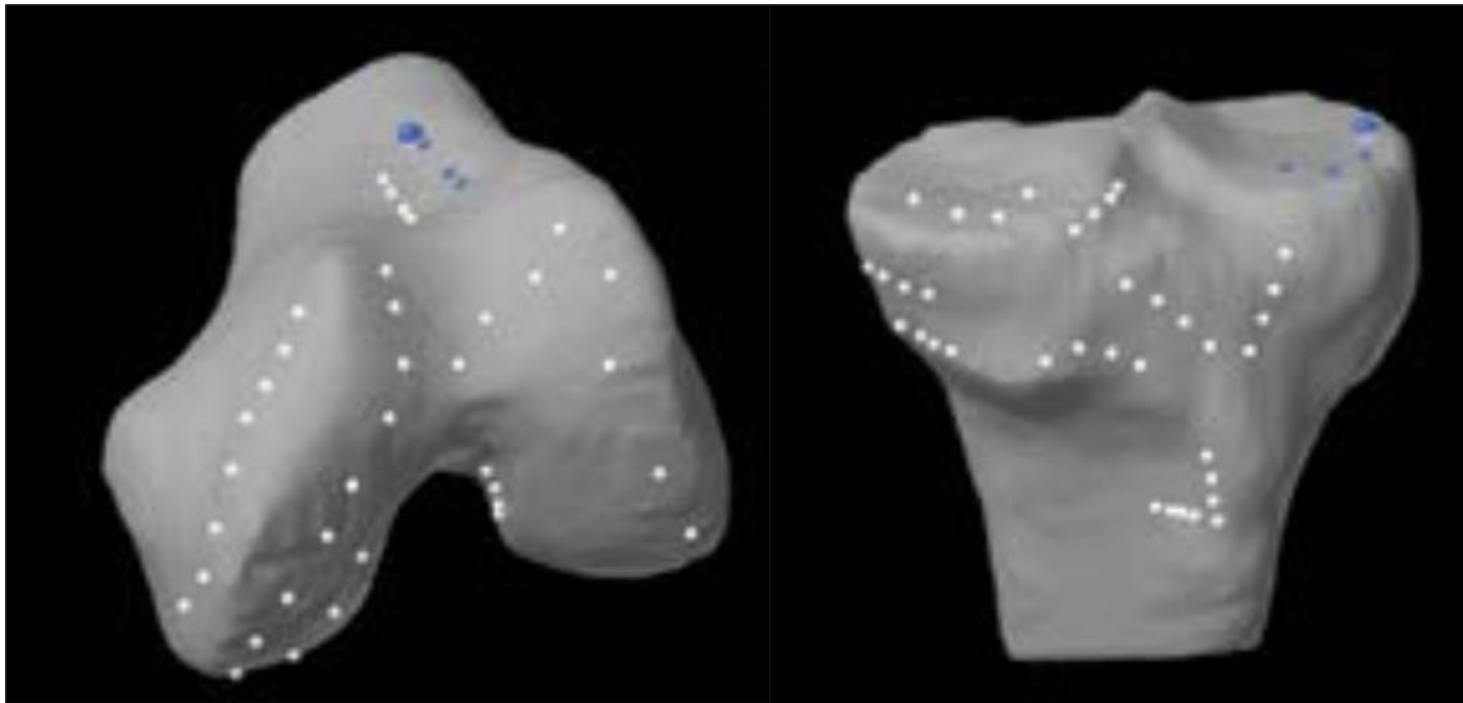
ROBOTIC SURGERY -MAKO

Arrays talk to the robot – knees move – robot moves



ROBOTIC SURGERY -MAKO

Arrays talk to the robot – knees move – robot moves



THE YOUNG PATIENT



THE YOUNG PATIENT – COMMON PROBLEMS

- **Sporting injuries**
 - MCL / Meniscus / ACL / Osteochondral defect
 - ITB Syndrome
 - Patella dislocation
- **The high heels**
 - Patello femoral joint chondromalacia patella
- **Congenital**
 - Plica syndrome
 - Patella dislocation
 - Inflammatory Arthropathy / Gout
- **The Post Traumatic knee**
 - Arthritic change

THE SWOLLEN KNEE

- **Local or general**
- **Duration and history of change**
 - <4 hours post injury → Haemarthrosis
 - ACL rupture
 - Osteochondral defect / Peripheral meniscal tear
 - <24 post injury → effusion
 - Mechanical derangement
 - Meniscal tear/chondral damage
 - General effusion secondary to inflammatory arthropathy and no trauma



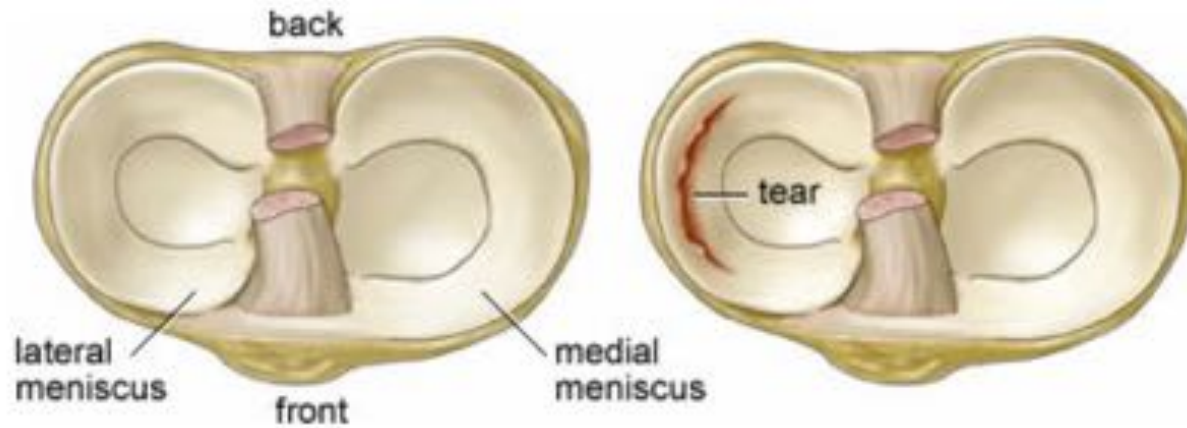
THE SWOLLEN KNEE – WHAT TO DO?



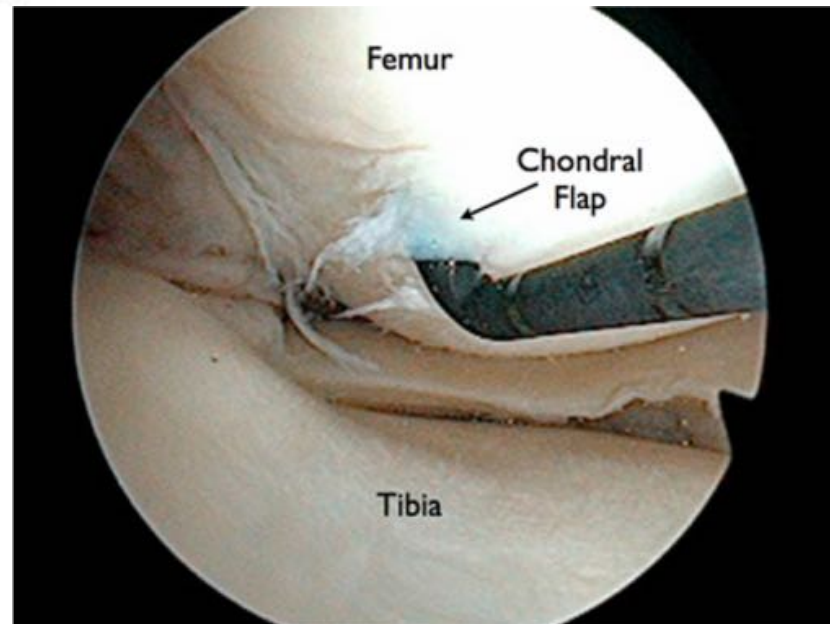
- **If appears minor ailment:**
 - Rest
 - Ice
 - Compression
 - Elevation
 - Return if necessary – then refer in electively if required
- **If major refer in via A&E**
- **If pain is disproportionate to appearance and high energy injury – generally either fractured or multiligament injury both of which need acute surgery – therefore refer in via A&E**

CATCHING / CLICKING

- Meniscal Tears



- Chondral Flaps



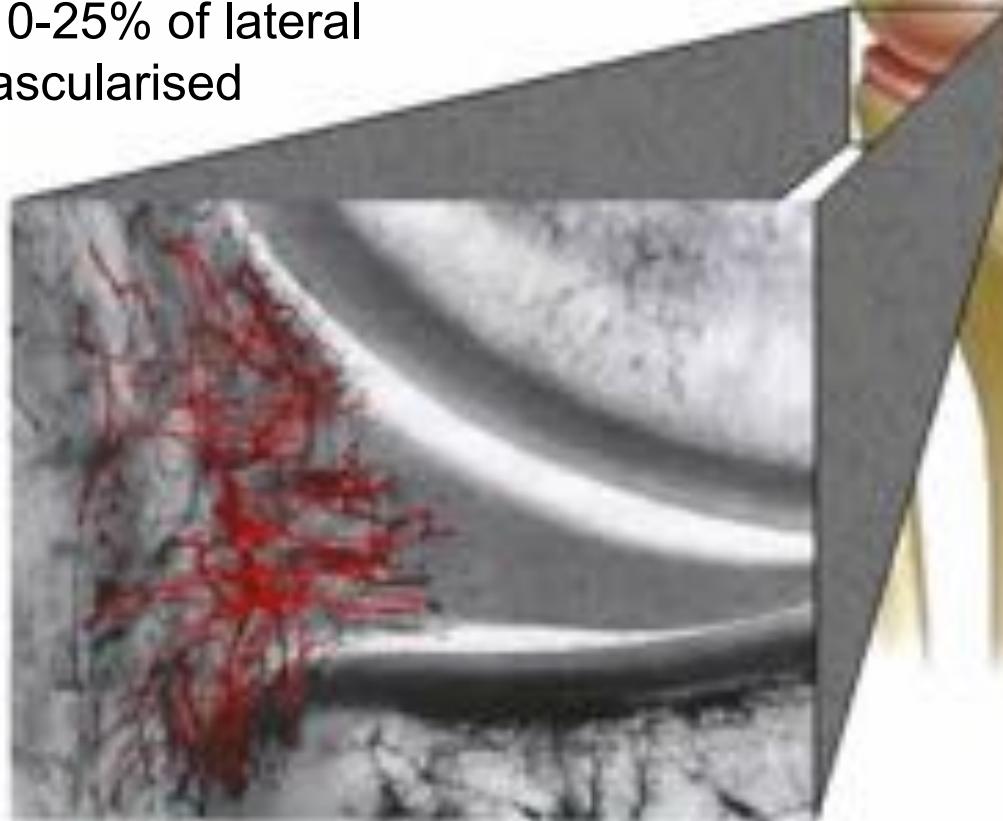
CATCHING / CLICKING

- Types of Meniscal Tear

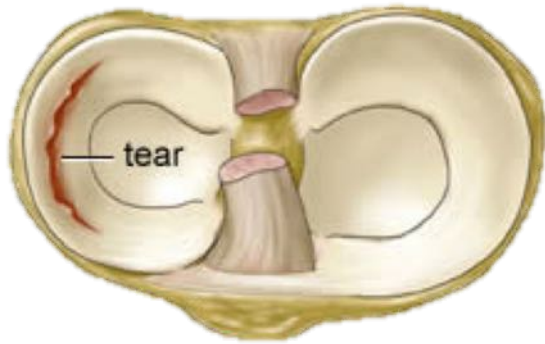


MENISCAL TEAR – WHAT TO DO?

- Peripheral 20-30% of medial meniscus vascularised
- Peripheral 10-25% of lateral meniscus vascularised
- Age < 40



MENISCAL TEAR – WHAT TO DO?



- Bracing
- The ACL and meniscal repair

MENISCAL TEAR – WHAT TO DO?

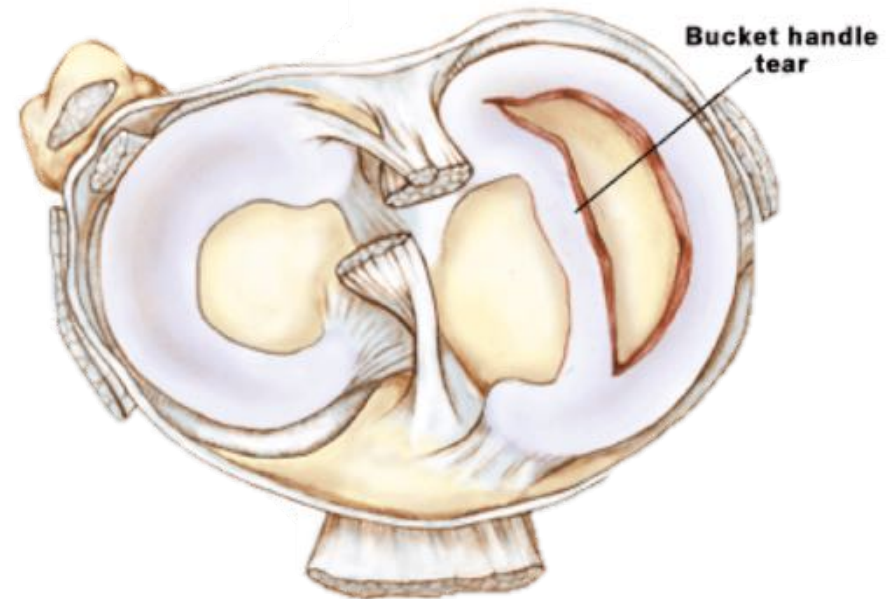


LOCKING

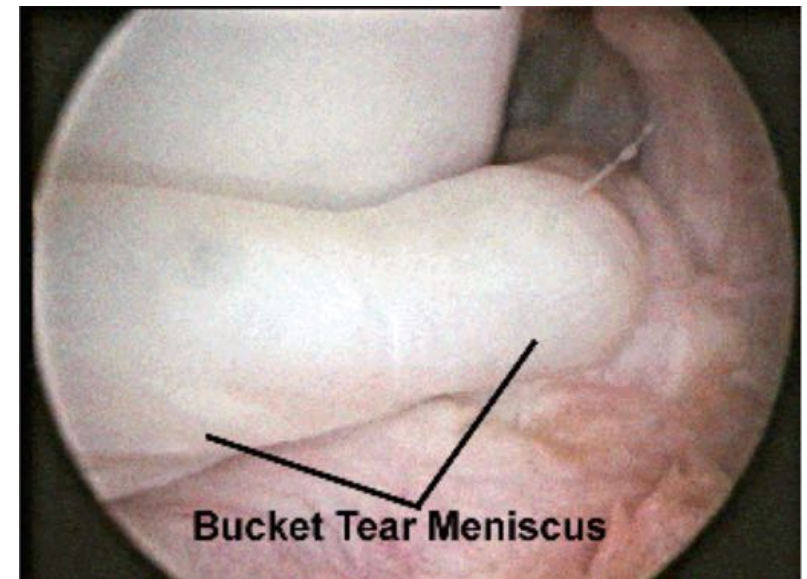
Locking

- True – actual block to extension
 - Intra-articular structure
 - Loose body
 - Meniscal Tear

Interposition between femoral condyle and tibial surface



- Pseudo-locking
 - More common
 - Anterior knee pain
 - ? Secondary to patella maltracking



INSTABILITY

- True Instability
 - Associated ligamentous instability
 - Normally associated with rotatory movements of femur on tibia
 - (e.g. Twisting action causing ACL internal rotation of femur on tibia following normal running leads to knee giving way)
- Pseudoinstability
 - No rotatory movement
 - Usually when walking in straight line or downstairs
 - Associated with pain
 - Rarely an effusion

CLINICAL EXAMINATION AT LAST

- **Gait**
- **Look**
- **Feel**
- **Move**

- **Special Tests**
- **That's it – The end!**

Always compare with contralateral joint and examine joint above and below



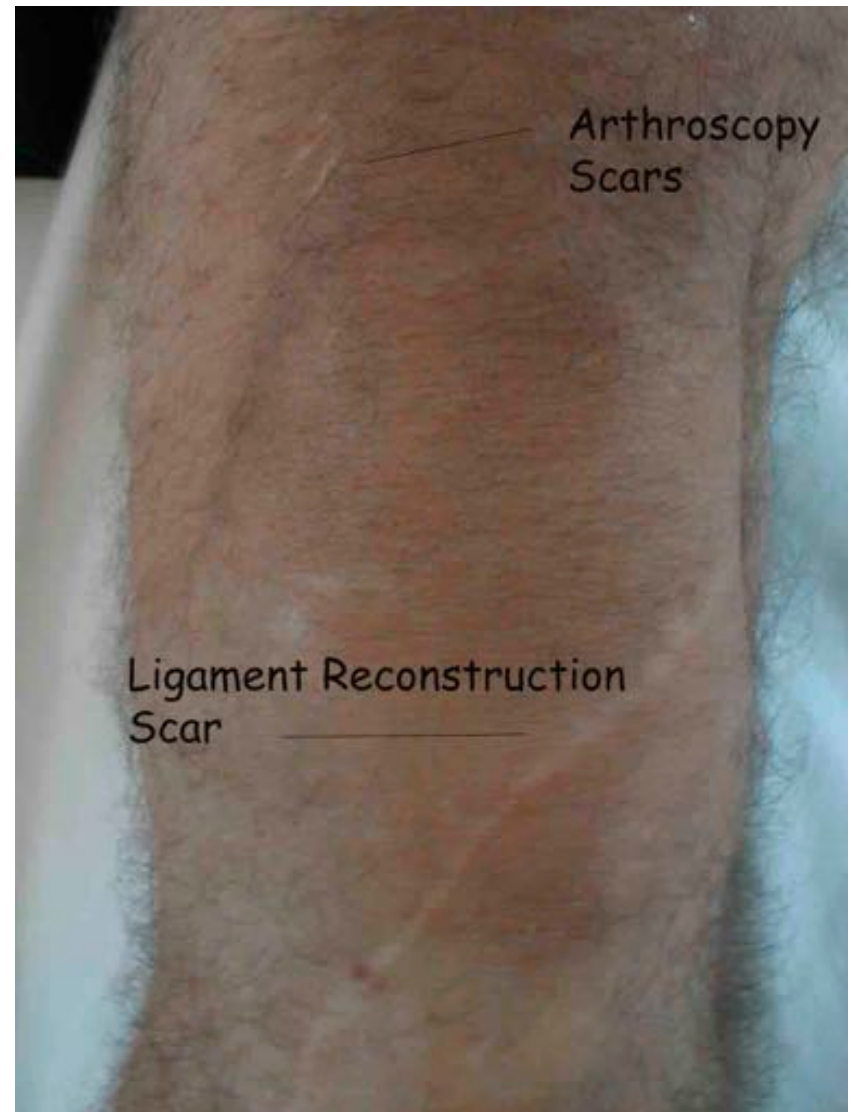
LOOK

- Gait – 10 steps
- Walking Aids
- Standing...
 - Anterior and posterior aspect of knee
 - Particularly leg length inequalities, femoral or tibial mal-alignments, foot malalignment leading to patello-femoral dysfunction
- Laying supine...
 - For the rest



LOOK

- Bruising
- Knee Effusion
- Scars
- Knee resting position
- Quads or calf muscle atrophy

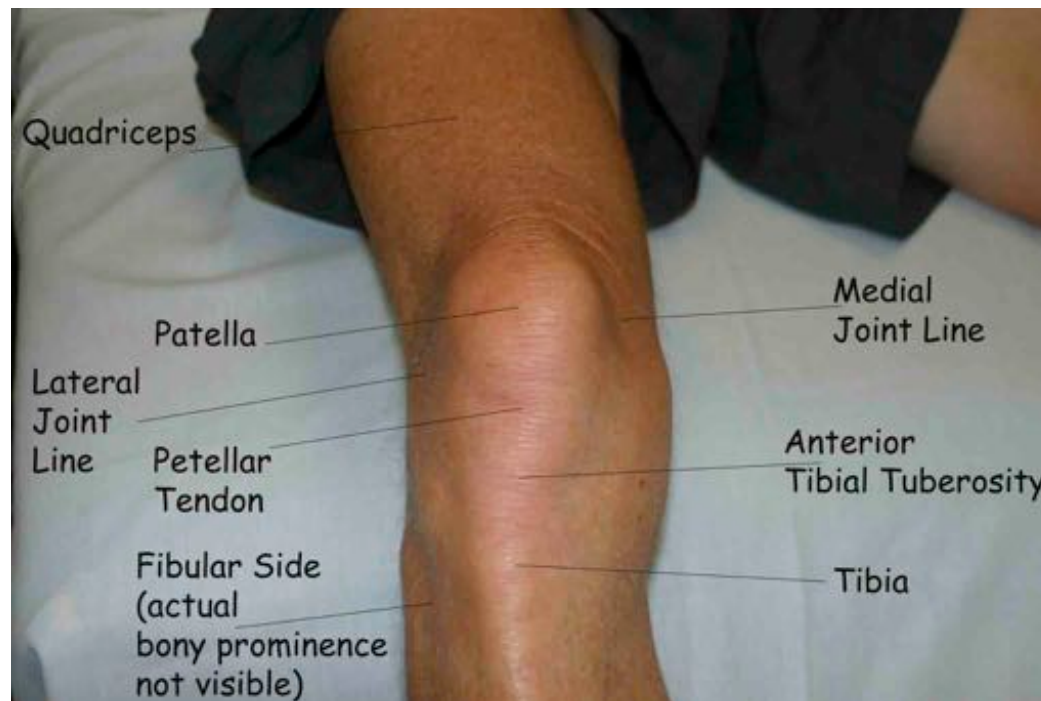


FEEL

ASK PATIENT WHERE IT HURTS BEFORE YOU TOUCH THEM!!!

Supine on the couch

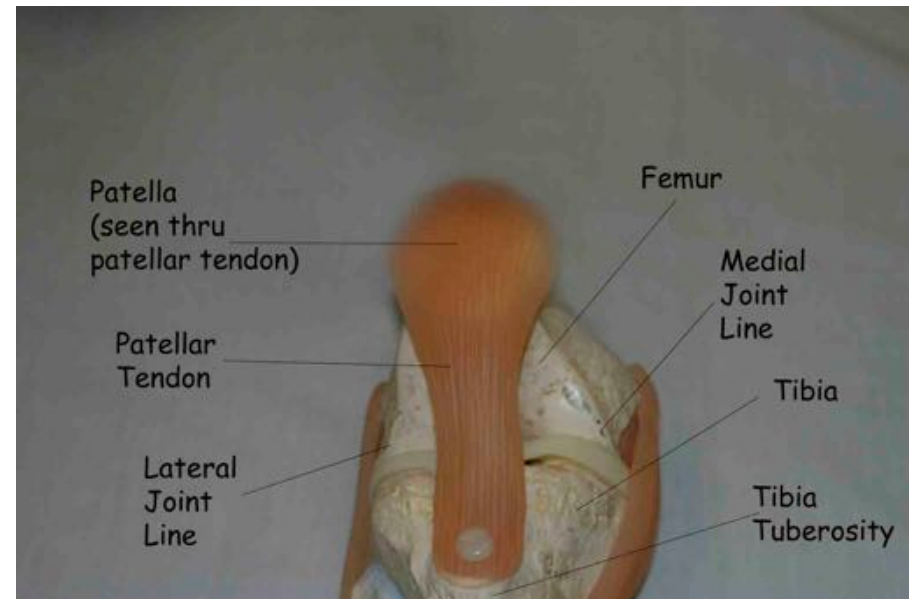
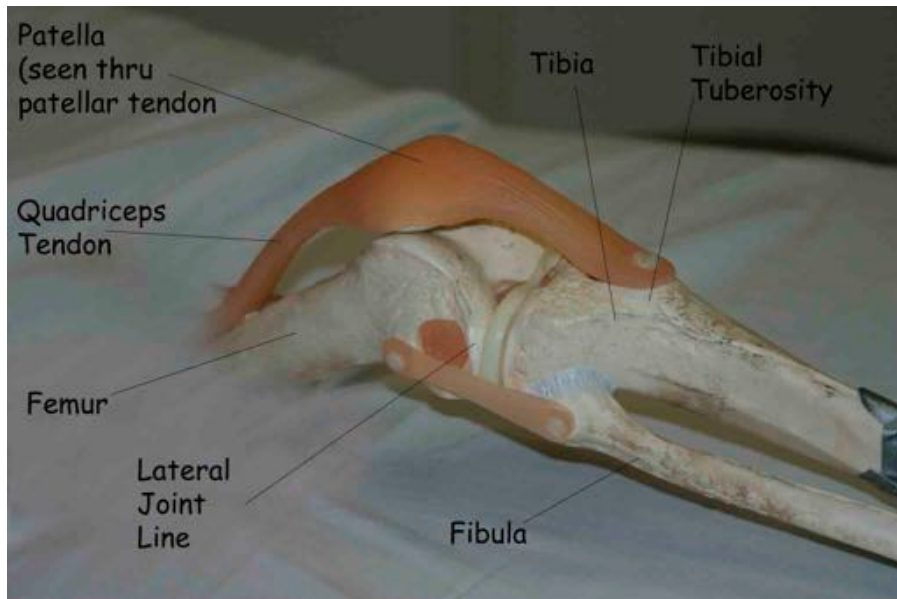
- Warmth, Synovial Thickening
- Effusion (wipe test, patellar tap)



FEEL

Palpate knee in orderly fashion!

- Extensor Mechanism
- Medial Jt line, MCL with stress test
- Lateral Jt line, LCL with stress test
- Popliteal Fossa



FEEL

Joint line tenderness

- May indicate meniscal tear
- MCL
- LCL (put leg into figure of 4 position to tense LCL and make it easier to feel)

MOVE

Check Extensor Mechanism

- Straight Leg Raise (SLR)

Knee ROM

- Hyperextension?
- Flexion (compare with other knee essential)
 - Either measure it in degrees or
 - Compare where heels reach on the couch



SPECIAL TESTS - CRUCIATE LIGAMENTS

**ANTERIOR CRUCIATE –
resists IR and Ant Translation
of Tibia on Femur...**

Three tests...

- Learn:
 - Lachman – most sensitive
 - Pivot shift
 - Most specific
 - difficult to do



ANTERIOR CRUCIATE LIGAMENT

Lachmann's Test

- Ensure no PCL sag



- Knee at 30 degrees of flexion
 - Hold right thigh with left hand
 - Hold right tibia with right hand
 - Translate!



- Grade 0: 0-3mm(normal)
- Grade 1: 3-5mm
- Grade 2: 5-10mm
- Grade 3: >10mm no endpoint

ANTERIOR CRUCIATE LIGAMENT

Pivot Shift Test (MacIntosh Test)

- Recreates antero-lateral subluxation → “giving way”
- Hands around the knee, foot under the arm. Knee in extension.
- Lower leg is then internally rotated and valgus strain applied. Knee is then flexed
- With further flexion of the knee (past approximately 30°), the iliotibial band goes from an extensor to a flexor of the knee and the tibial anterolateral subluxation reduces (shifts) back into place with a clunk.
- This test requires medial stability

ANTERIOR CRUCIATE LIGAMENT

- Pivot Shift Test



SPECIAL TESTS

Collateral ligament evaluation

- Knee Valgus Stress Test (Medial collateral ligament)
 - Test in extension ? Degree of opening ?soft or hard end point
 - If no endpoint with knee in extension then no MCL or Cruciate ligaments
 - Test in Flexion 20°
 - Eliminates cruciates
- Knee Varus Stress Test (Lateral collateral ligament)
 - Less common
 - Same test as above
- Note: slightly more laxity in lateral side

SPECIAL TESTS

Meniscal Pathology

- McMurrays Test (palpation more sensitive)

SPECIAL TESTS

Patello-Femoral Pathology

- Maltracking (pain, subluxation, frank dislocations and osteoarthritis)
- Observation with knee flexed over end of couch allows patient to passively then actively extend and flex. Looking for a knee jerk



SPECIAL TESTS

Finish

- Examine the Hip above with internal rotation

PRACTICAL

Volunteer....



QUESTIONS

www.bradfordortho.co.uk
www.leedsortho.co.uk

