

ORTHOPAEDIC PRESENTATION:

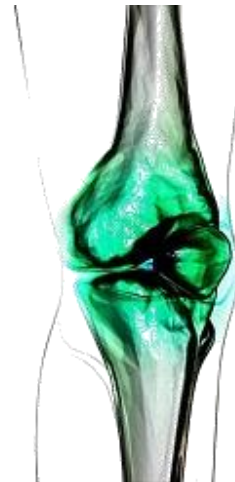
ACL Intra-articular Reconstruction + Lateral Tenodesis

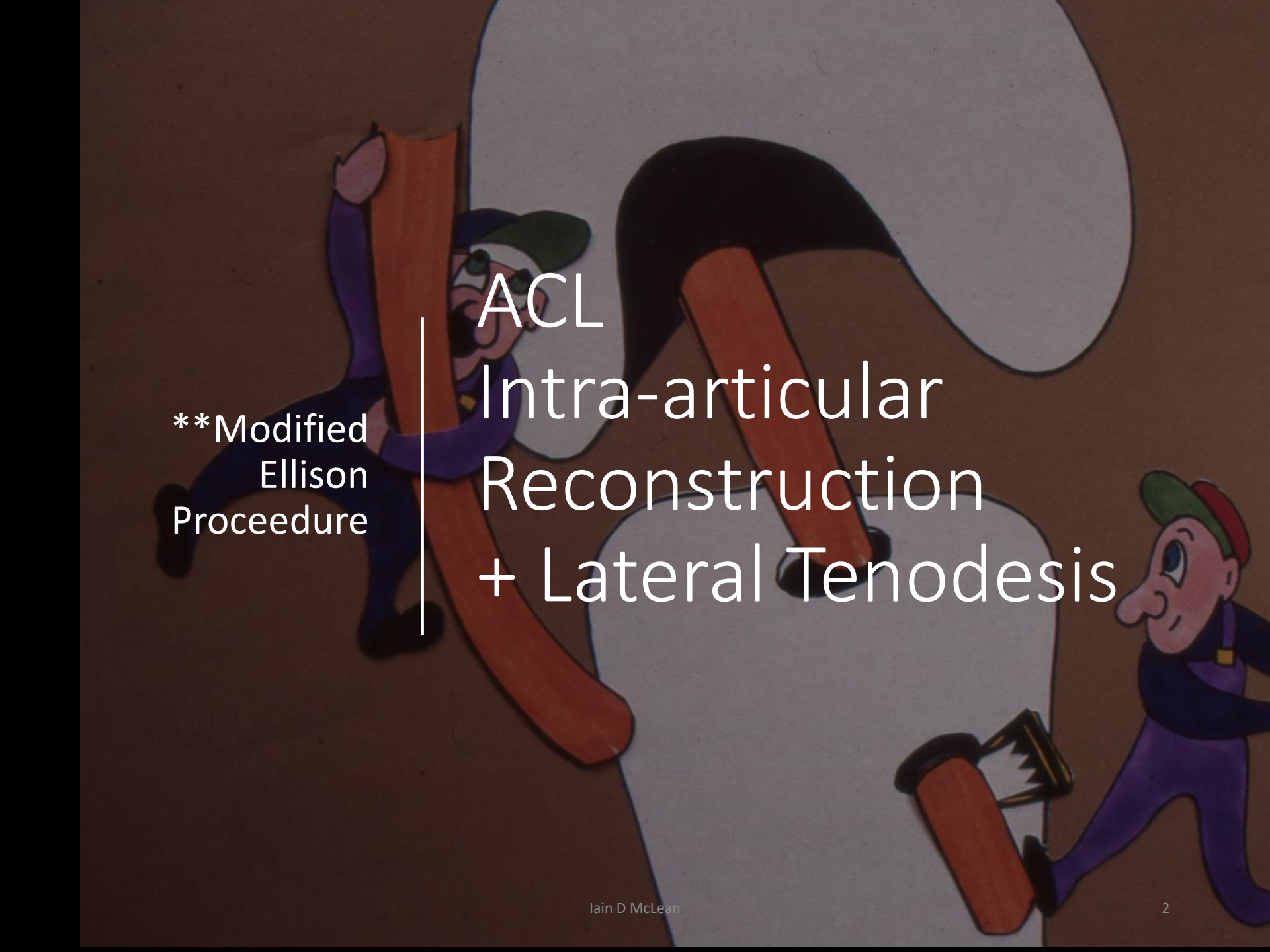
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****Modified
Ellison
Procedure**

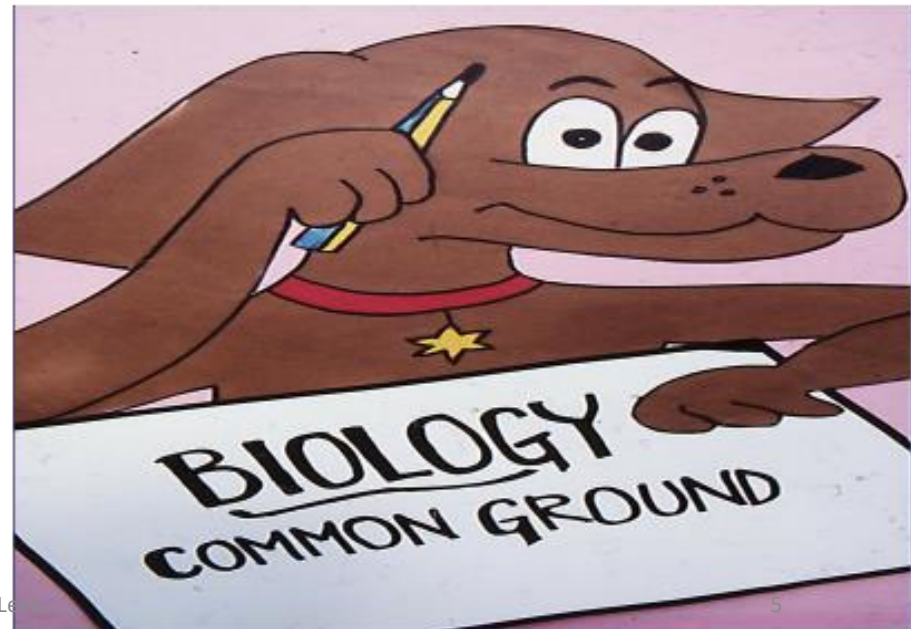
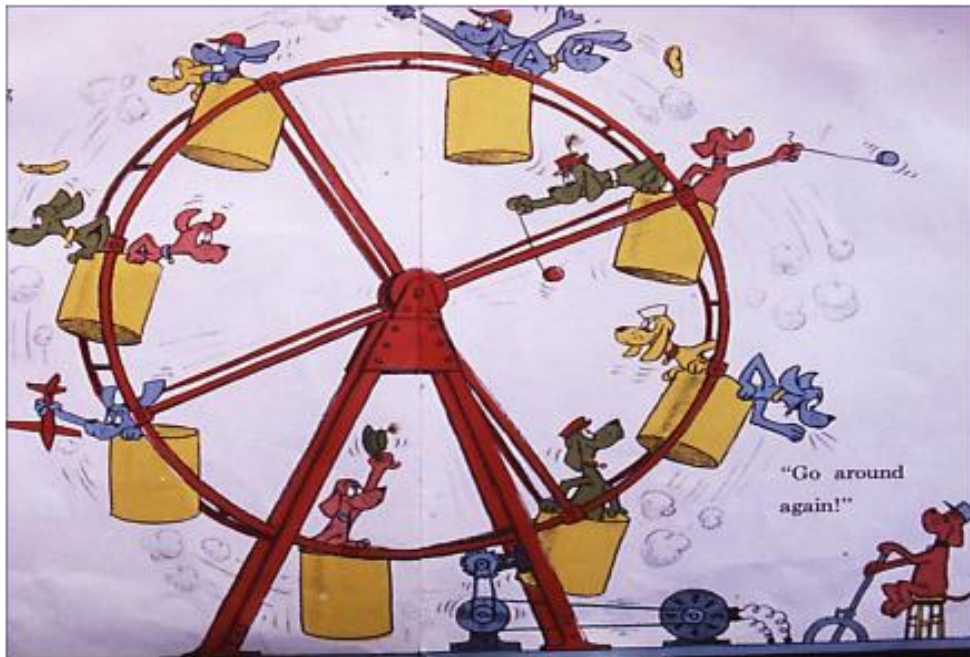
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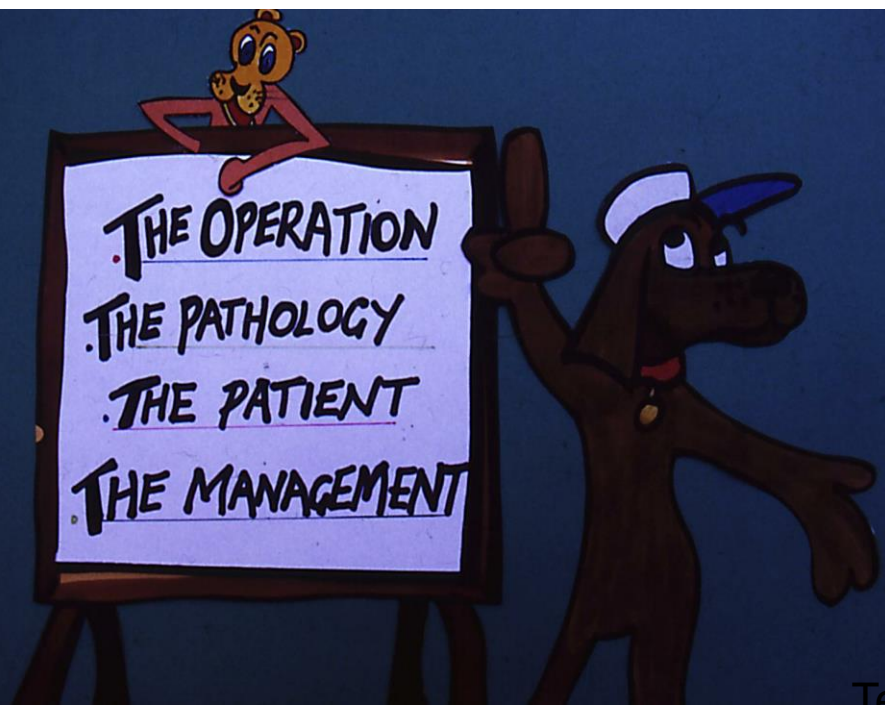
INDIVIDUAL LEARNING

- Listen to mentors... conferences / lectures... 'experts'
- Think & question... do not 'just accept'
- Discuss with your team & colleagues
- Apply to relevant situations
- Review your own cases 'personally' & critically
- Listen to your patients, your physio, & your team
- Modify ...to your individual practice & individual patients

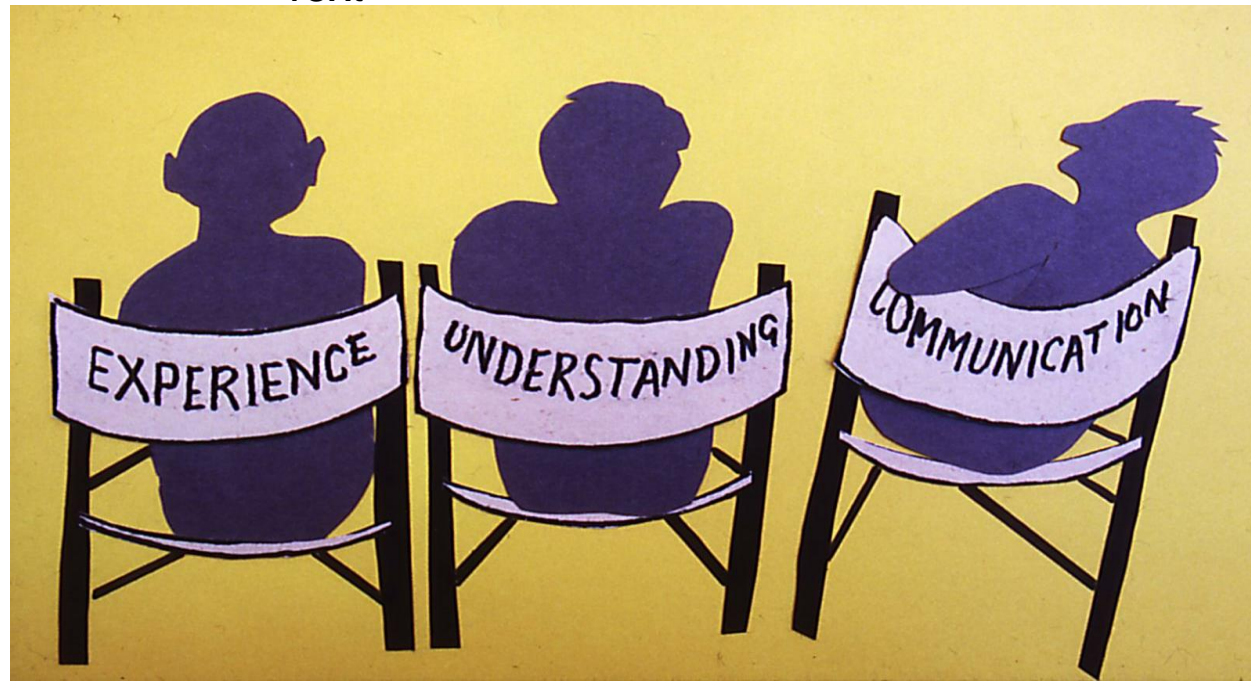
FUNCTIONAL STABILITY

- Eliminate or reduce the size and speed of the pivot / jerk
- i.e. = 'lateral femoro-tibial translocation'
- Deal with menisco-chondral pathology = IDK...
- Regain muscle [Quads/VMO & hamstring]. Strength, Endurance and Co-ordination.





Text



“CAPTURE” the knee/ joint

- This is a **‘popularised’ term** used to describe problems; associated with = ‘lateral tenodesis’...
- The findings of increased stiffness, patellofemoral problems and functional disability... in series studied... comparing... Intra-articular graft in isolation... and those with combined... intra-articular and lateral tenodesis!
- **This lead non-thinking ‘sheep’ to follow the more outspoken ‘leaders’ and abandon completely a very useful procedure...**
- **AIM is to ‘reinforce’ the stretched or lax... mid 1/3rd lateral capsule!**
- Best addressed by the Ellison type tenodesis
- **With ITB strip rigidly fixed ‘only’ distally- & preservation of posterior ITB & Kaplan fibres**



“NOBODY HAS
MASTERED ANYTHING”

“YOU CANNOT BEAT
THE BIOLOGY”

“THERE IS NO
RECIPE BOOK FOR...”

INJURY

LIGAMENTS= ACL / PCL
MCL / LCL COMPLEX
MENISCAL
CHONDRAL
PATELLA INSTABILITY +/-
OSTEO-CHONDRAL

AGE
ACTIVITY
SPORT / WORK
PROTOPLASM
PSYCHE

ALIGNMENT-
VARUS / VALGUS
ROTATION

DEFINITIVE
TREATMENT
= TYPE
= TIMING OF
'APPROPRIATE
SURGERY'

REALISTIC
EXPECTATIONS
'COME TO
GRIPS'
= PREPARATION

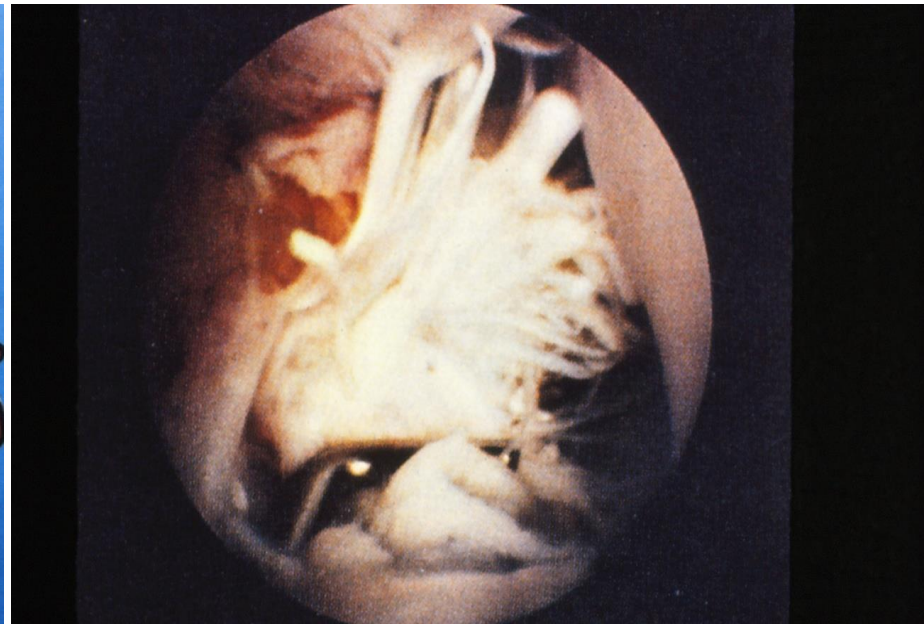
RESPONSE
PAIN / ANXIETY
QUADS INHIBITION
2*WASTING /
IMBALANCE
= PATELLO-FEMORAL
+/- STIFFNESS

'blood'

INFLAMMATORY

"ASSOCIATED" A.C.L.

- CAPSULE
- COLLATERAL LIGAMENT
- MENISCI
- ARTICULAR SURFACE



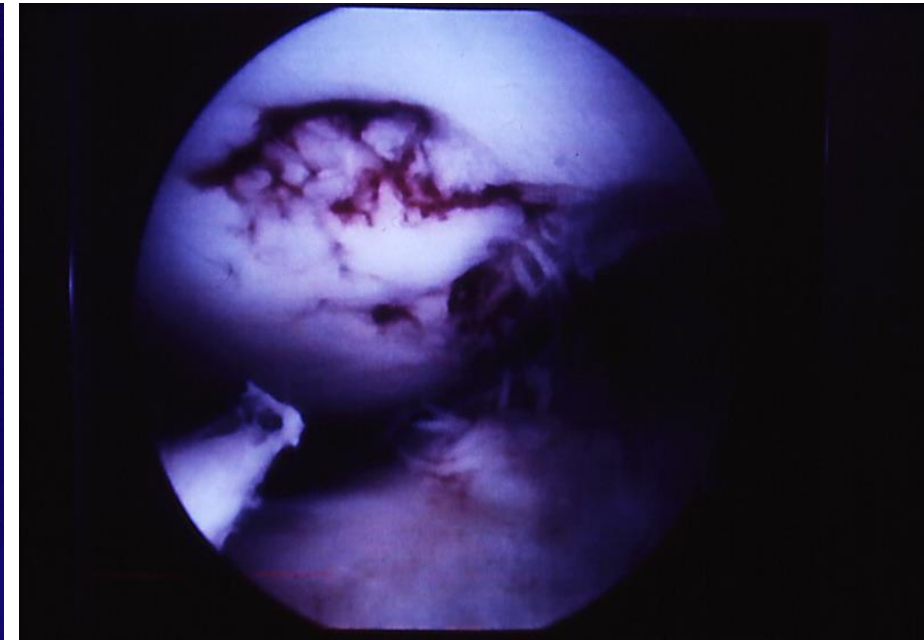
SURGERY

INAPPROPRIATE

Type

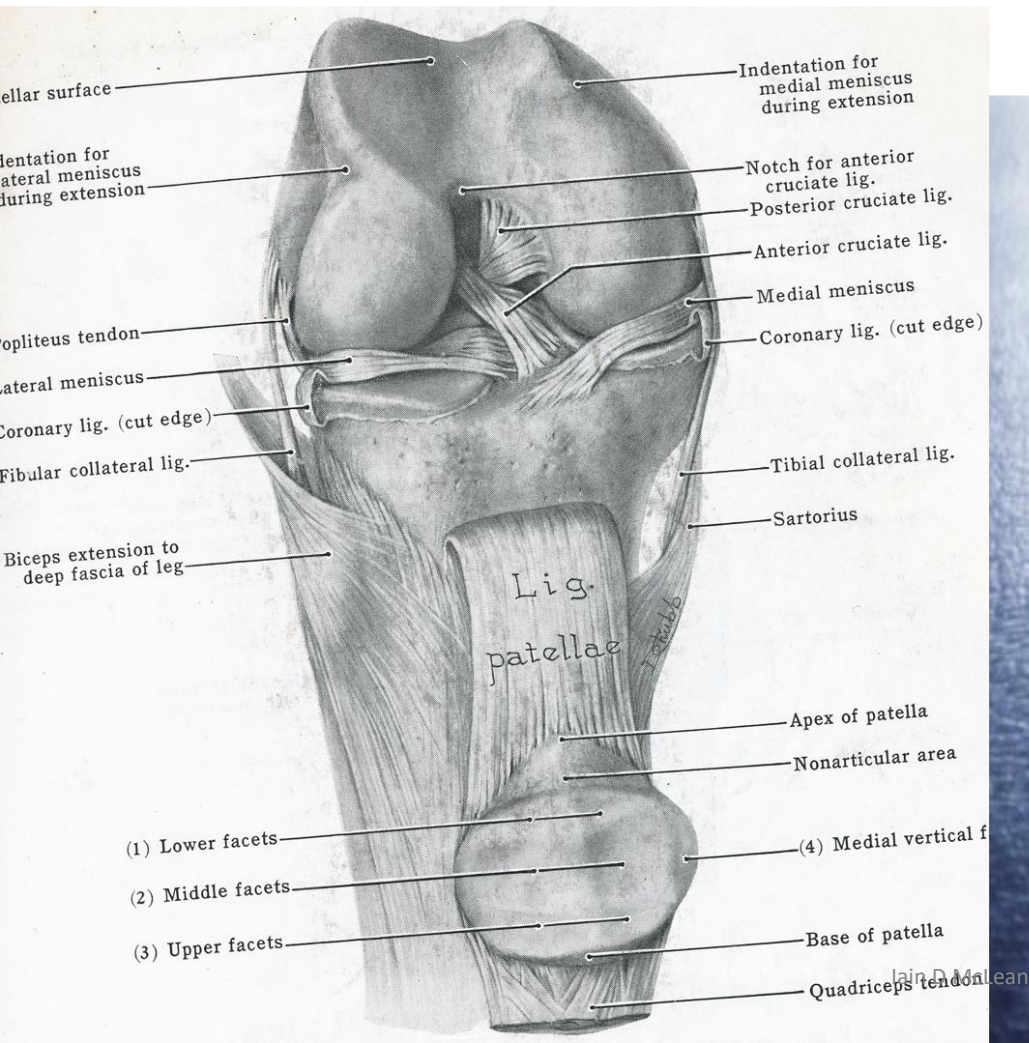
Timing

= DISASTER



'Functional' graft size limited by –
InterCondylar dimensions ..

Range Of Movement... & Attachments (Tibia & Femur)



THE GRAFT

“COLLAGEN SCAFFOLD”

Operation = Collagen scaphold...

= technical 'masterpiece'!

But then need to wake patient

= a whole new unpredictable ball game

**HEAL BY SCAR
NOT
REPLICATION**

**PHYSIOLOGICAL LOAD
produces
FUNCTIONAL ADAPTATION**

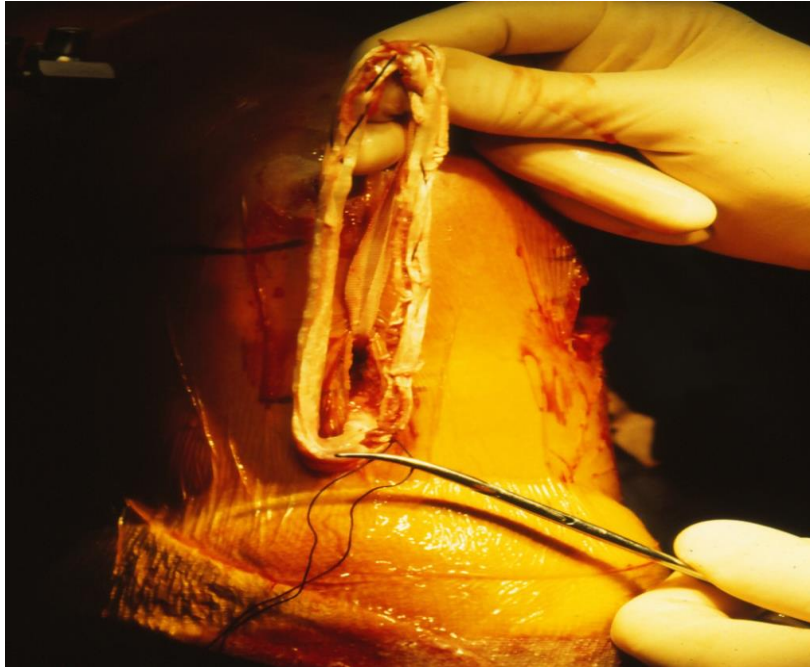
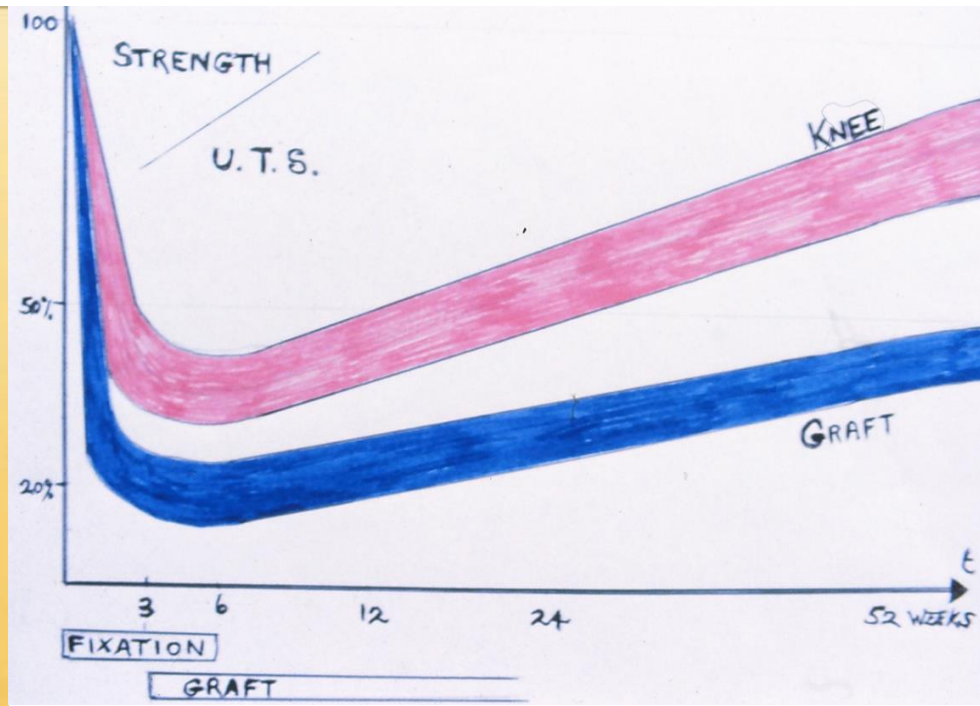
NOT THE SAME

- Structure**
- Biomechanics**

MOTION - MOULDS

**MULTIPLICITY
OF FACTORS**

- INTRINSIC**
- EXTRENSIC**



**“COMPOSITE”
of
GRAFT TENDON
and
SCAR TISSUE**

Indication for any Surgery =

is always 'relative'...



The diagram consists of two dark blue circles connected by a light gray triangle pointing from left to right. The left circle contains the text 'Art of' –patient selection. The right circle contains the text Type and timing of 'appropriate surgery'....

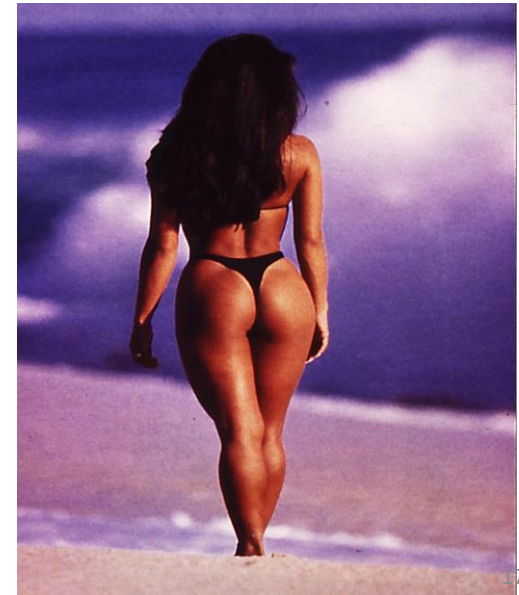
'Art of' –patient
selection

Type and timing
of 'appropriate
surgery'....

THE PROTOPLASM 'MATERIALS' ARE DIFFERENT



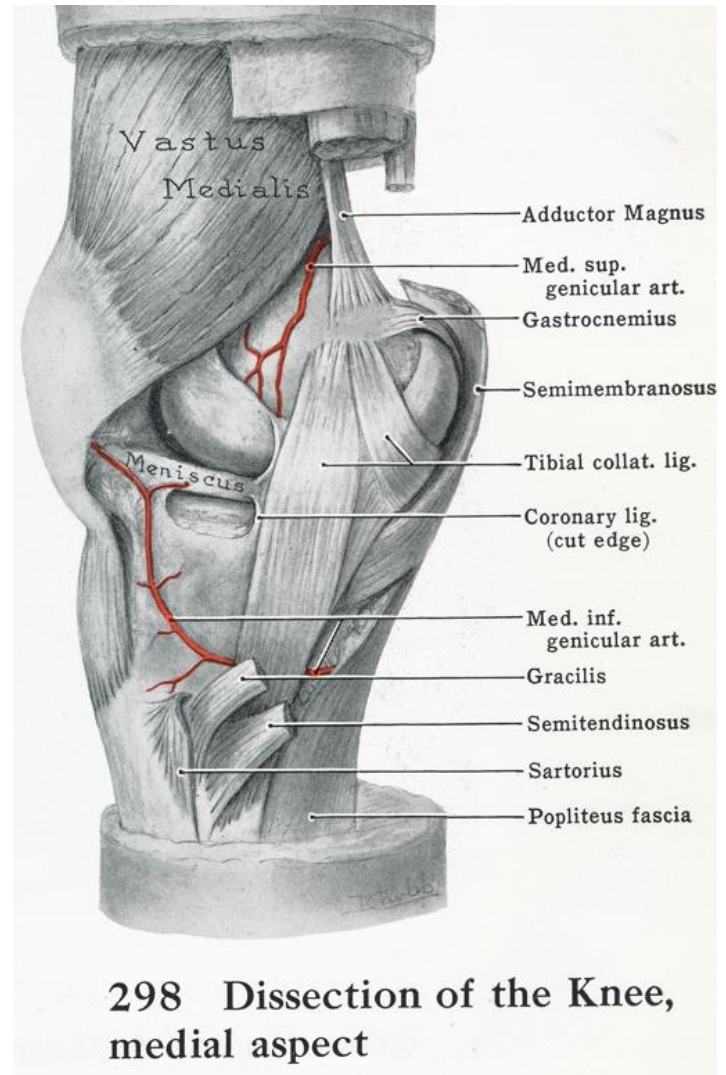
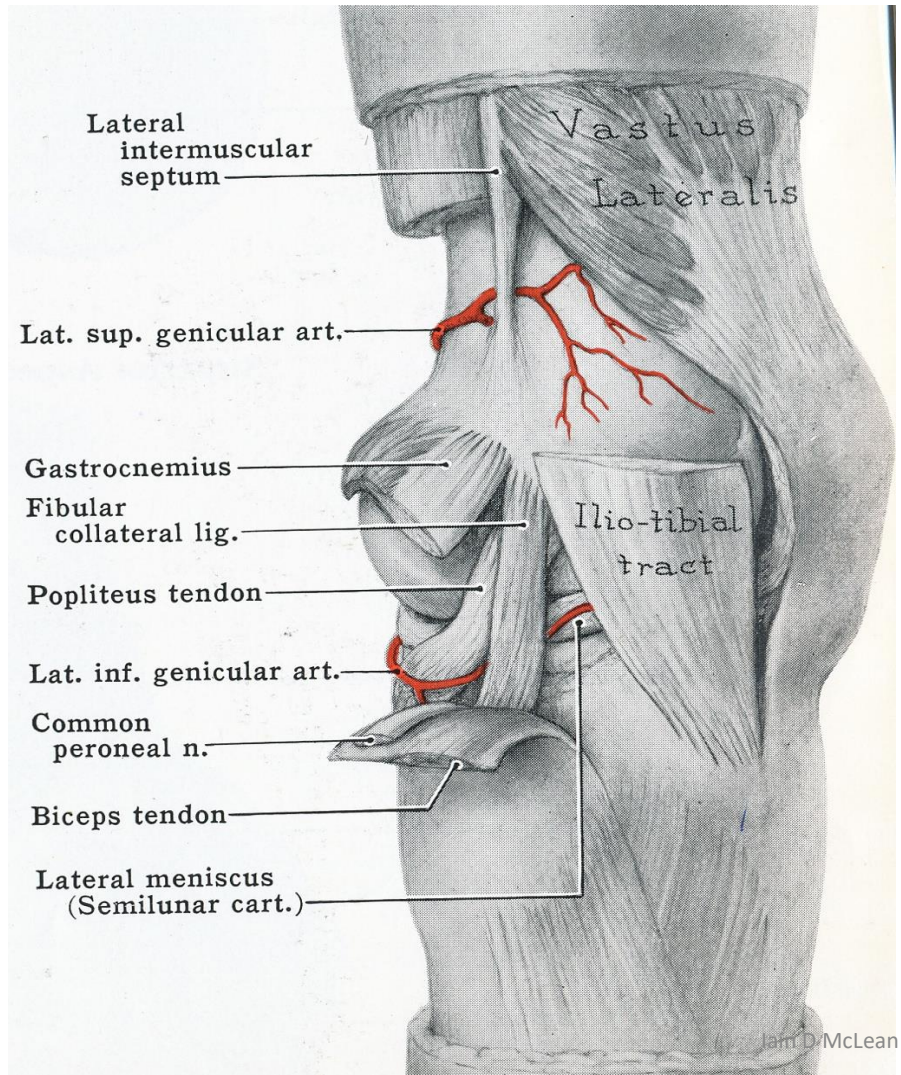
Iain D McLean



Lateral side structures ...

allow slide/ glide movement of femur on tibia.


Act as “Secondary restraints” / 2*restraint



298 Dissection of the Knee, medial aspect

INDICATIONS CONSIDER: ACL + LATERAL AUGMENTATION / TENODESIS

- ATHLETIC = HIGH DEMAND – ROTATIONAL/ PIVOT – ACTIVITIES
- YOUNG = SKELETALLY MATURE (14/16yrs), through to approx. 30yrs
- SIGNIFICANT PIVOT / JERK TEST (clinically and/or at EUA)
- RECURVATUM... General ligamentous laxity
- CHRONIC ACL INSUFFICIENCY (with above criteria)
- HAMSTRING GRAFT (as initial graft of choice)

A large, dark blue, abstract splash-like graphic on the left side of the slide, with a rough, ink-splattered edge. It contains the text 'RELATIVE INDICATIONS... TO CONSIDER 'INDIVIDUALLY'' in white, sans-serif, all-caps font.

RELATIVE INDICATIONS... TO CONSIDER 'INDIVIDUALLY'

- REVISION ACL RECONSTRUCTION
 - ACUTE ACL; IF UTILISING HAMSTRING GRAFT
(with a BIG 'PIVOT')
-

- Less likely to be considered / indicated
- ACUTE INJURY WITH ASSOCIATED INJURIES
REQUIRING OPERATION:
 - COLLATERAL LIGAMENT / CAPSULAR REPAIR
 - +/- MENISCAL REPAIR

Relative Contra- indications

Pain!!

- Difficult or no... 'Quads activation'... Inhibition
- Range of movement deficit
- Patellofemoral... instability and/or significant malalignment
- Less demand
- Older age
 - i.e. those with increased risk of stiffness and problems mobilising and/or PF problems

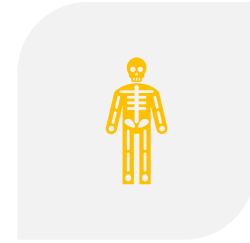
Preparation for ACL + Lateral tenodesis:



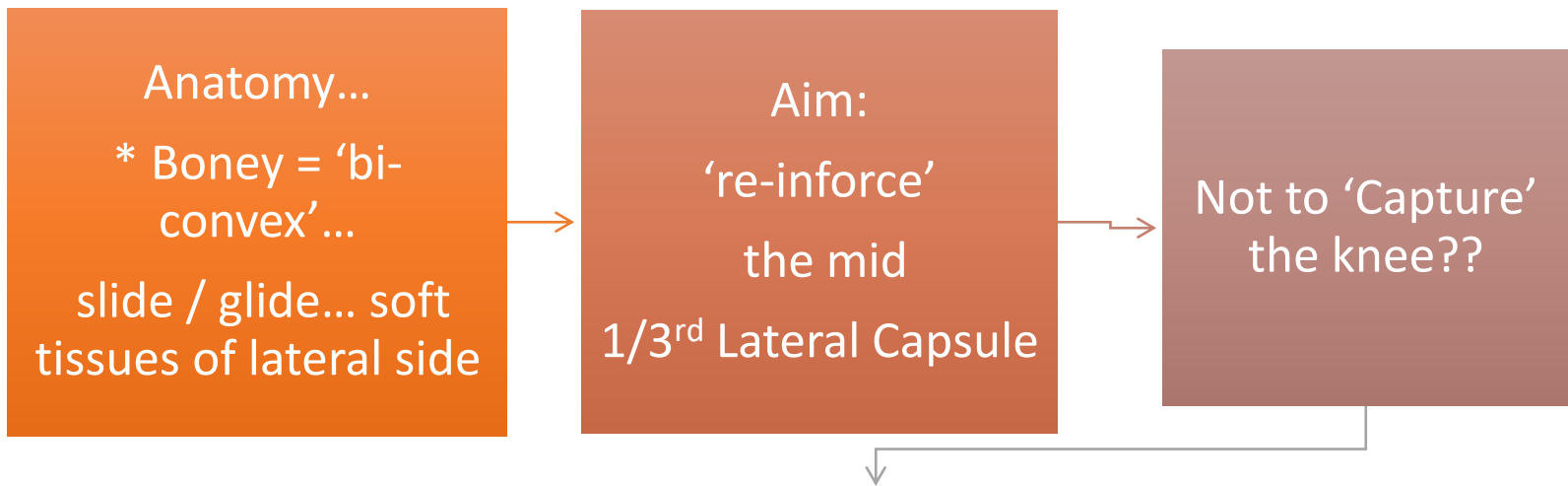
**MUST HAVE QUADS
ACTIVATION AND
GOOD RANGE OF
MOVEMENT**



**'BE AWARE'
LONGER LATERAL
WOUND / SCAR**



**INITIALLY
LATERAL
TIGHTNESS AND**

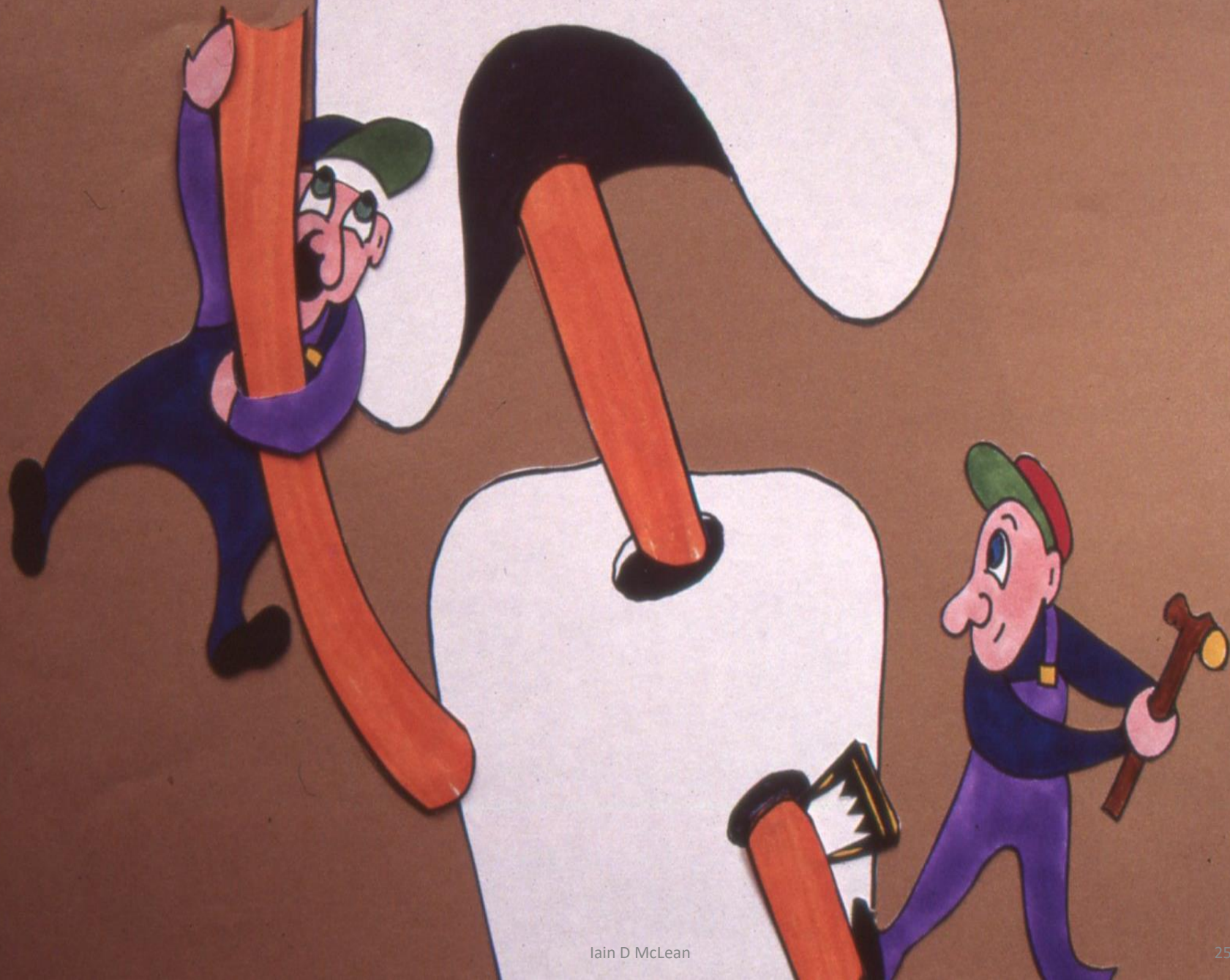


Rigid fixation at femoral and tibial ends. Must result in abnormal kinematics. i.e.

- * Stretch /tear of graft or fixation
- *Reduced / limitation of motion
- *Abnormal articular / chondral compressive or shear forces.

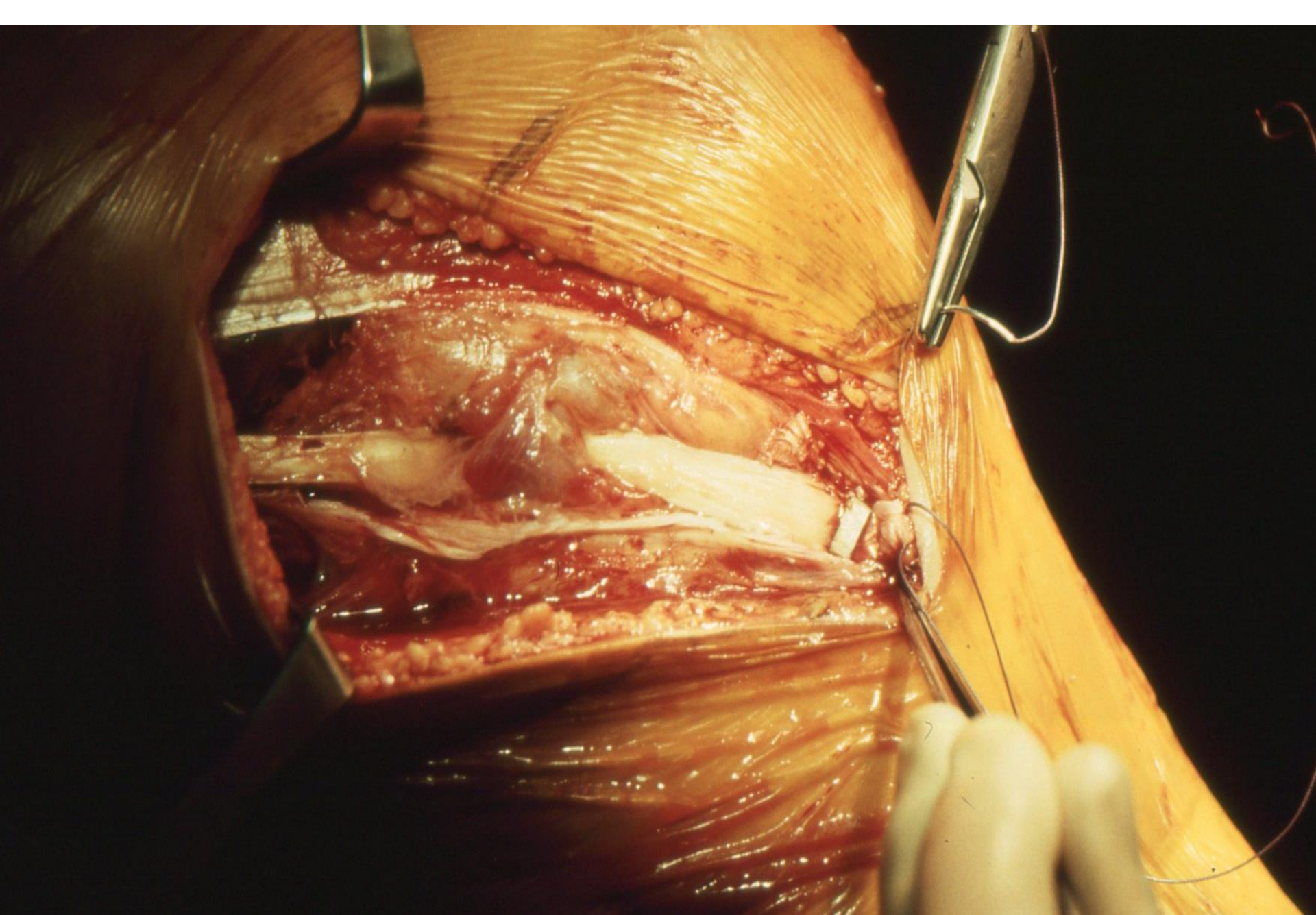
'OPINION': Lemaire MacIntosh Losee etc

- There is no/ !! Minimal ... if any place.... for these type procedures
- Work well in the laboratory... cadaver studies... In reducing lateral movement and pivot/ jerk test.
- But these are not measuring or looking at articular / chondral 'compressive & shear factors'.
- There are no 'isometric' points on the lateral side.
- **Therefore you should not 'fix' a soft tissue graft 'rigidly to femur & tibia'.**



Surgical Technique: 'Modified' Ellison Tenodesis

- Identify width of ITB & Posterior ligamentous ... 'Kaplan fibres'.
- Determine width of tenodesis (approx. 1cm) and gerdes tubercle bone
- Isolate proximal Lateral collateral ligament... Capsule and vessels!
- Passage of graft under lat. Ligament
- Gerdes - Bone - bone fixation = in mild external rotation and no tension
- Suture... graft / lateral ligament / capsule... haemostasis
- ITB closure... Without undue 'Tension'... Continues / running suture... there is no need for complete closure
- VARIABILITY... Individual variations



Be aware... possible complications

- Bleed/Haematoma...
 - Peri-ligament/capsular vessels
- Gerdes tubercle... prominence =
 - boney overgrowth; staple
- Patella tracking... Quads/VMO imbalance...
 - PF malalignment
- ITB tension... suture/closure/defect
- Surgical Scar
- Kneeling!!

Other factors to consider...

- Lateral scar
- Aware of lateral tightness... initial discomfort!!
- Must gain early Quads 'activation'
- Need to take rehab more cautiously 'initially', i.e. for the first 6 to 12 weeks. Goal oriented =
- Experienced physio re patella mobilising and taping
- Cycle 'once gained'; extension to (or close to) neutral and flexion to 110°
- Start indoors... then outside

The OPERATION

The PATHOLOGY

The PATIENT

The MANAGEMENT

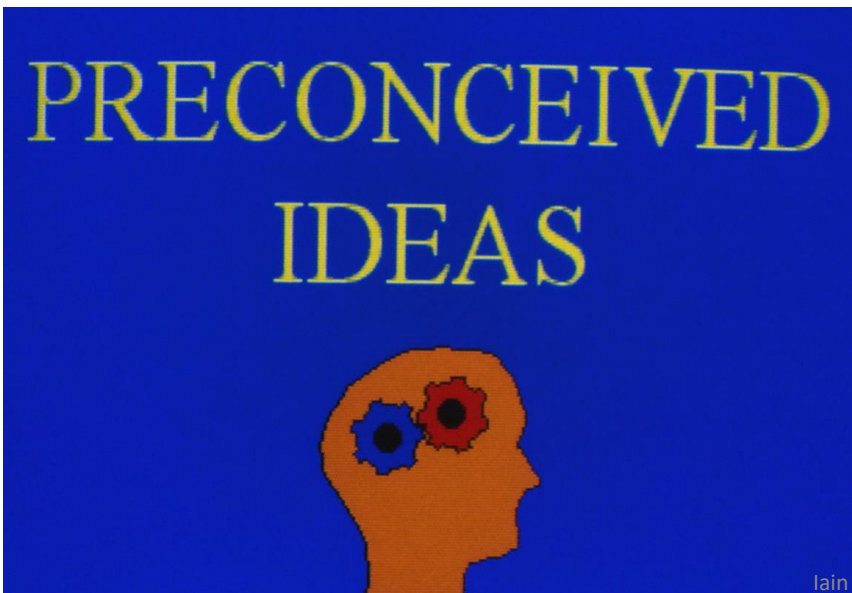
"ACTIVE BIOLOGICAL" PHASE

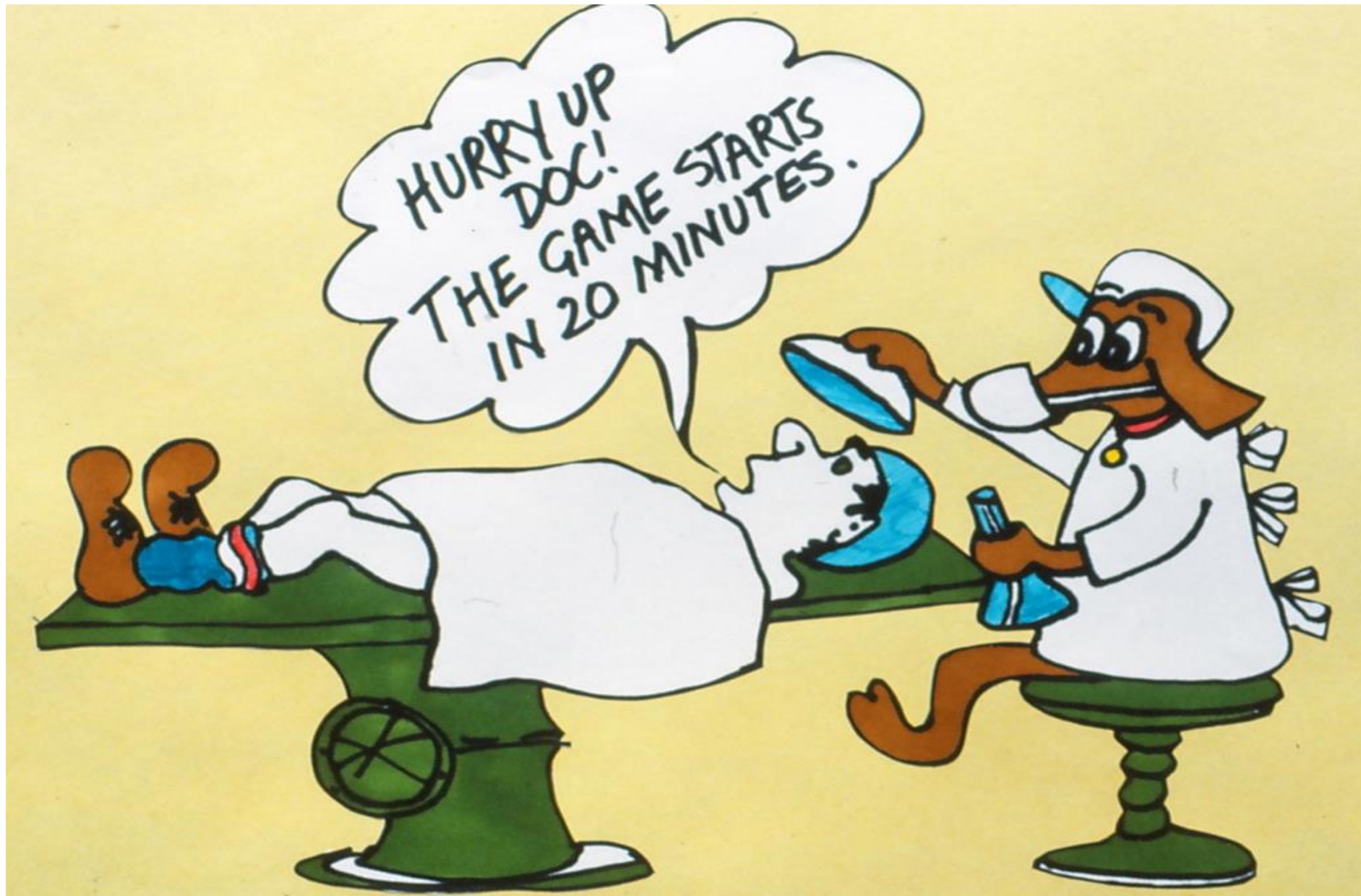
0 - 3 - 12

PHYSIOLOGICAL LOAD

produces

FUNCTIONAL ADAPTATION





JANUARY

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FEBRUARY

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AUGUST

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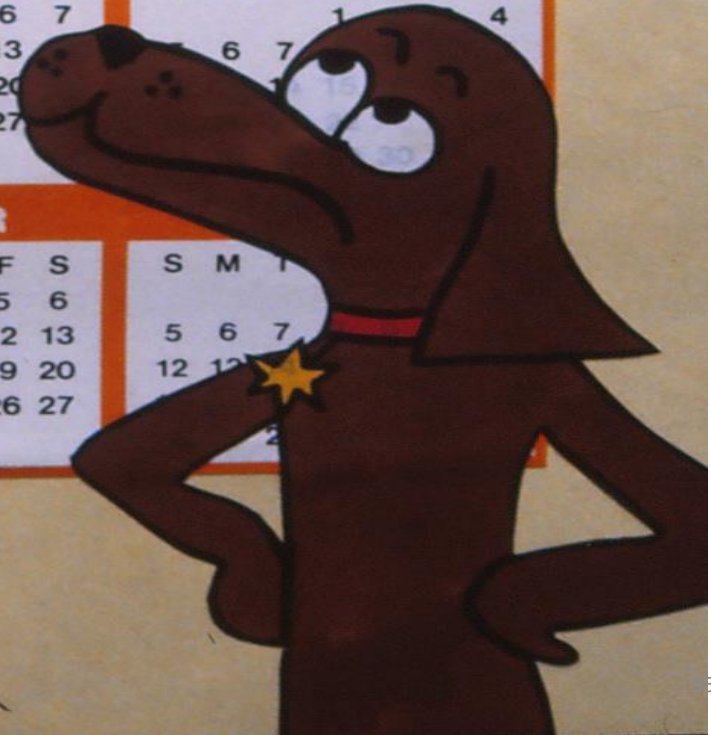
OCTOBER

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NOVEMBER

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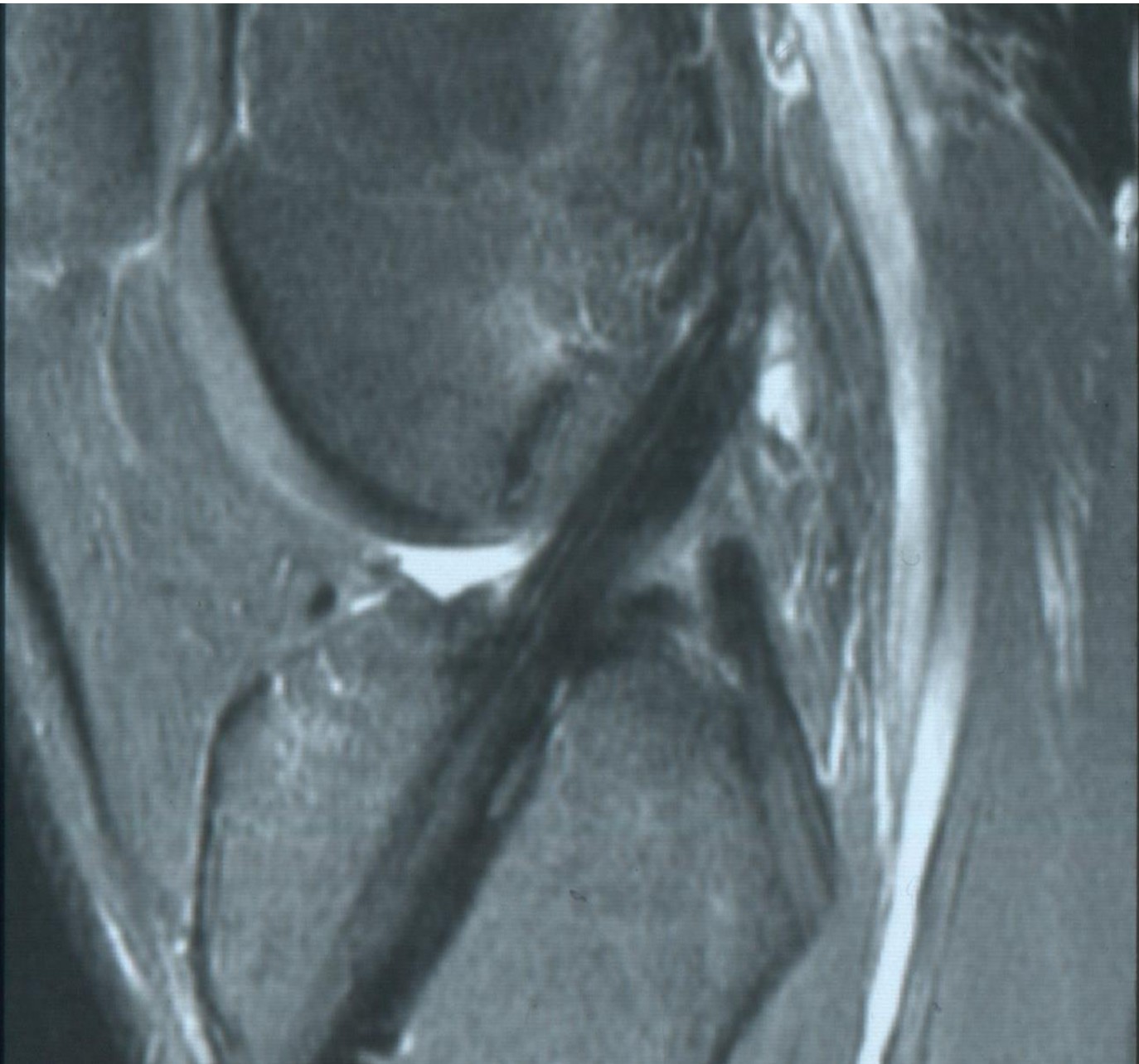
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TIME

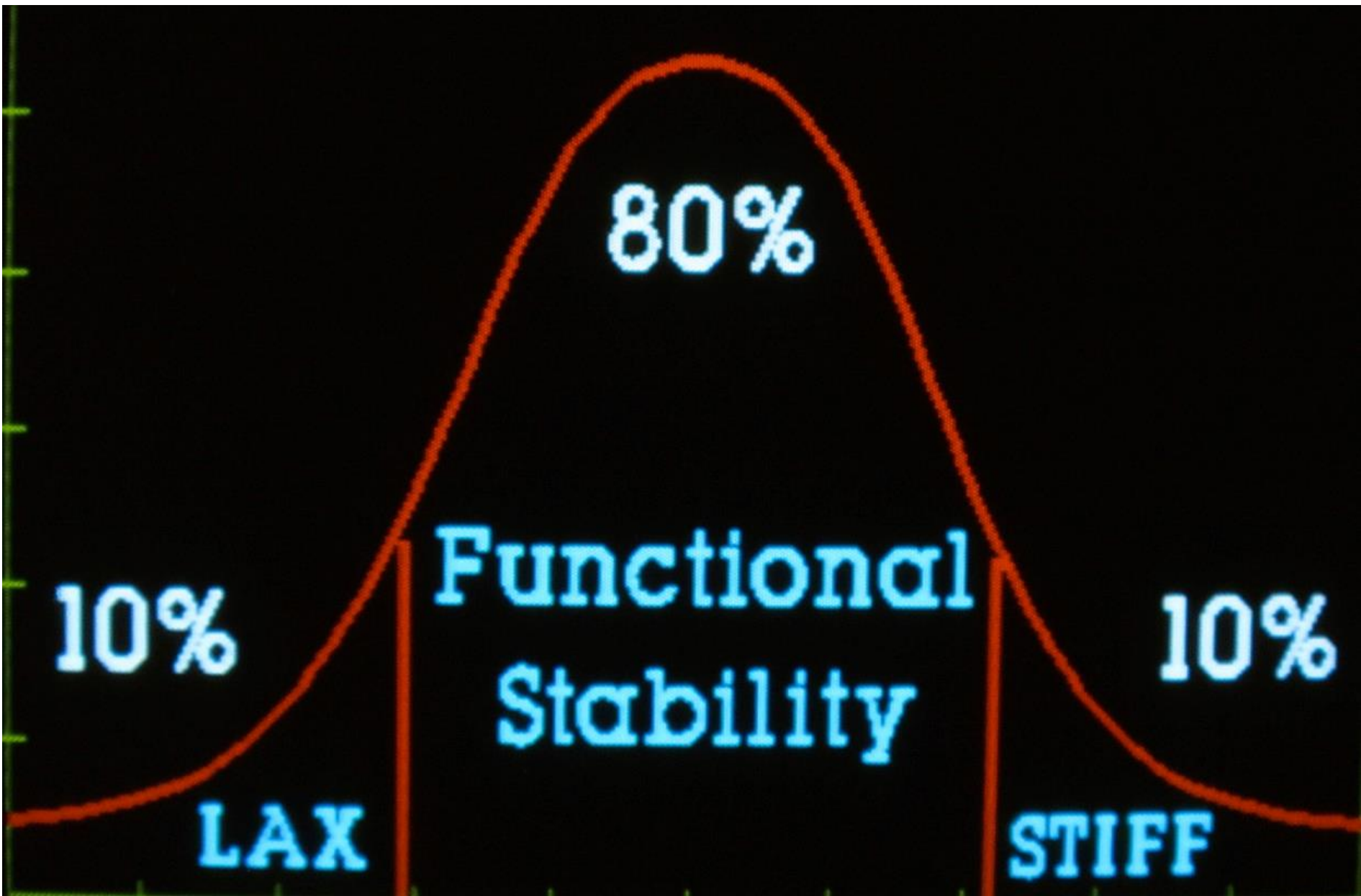
“COMPOSITE”

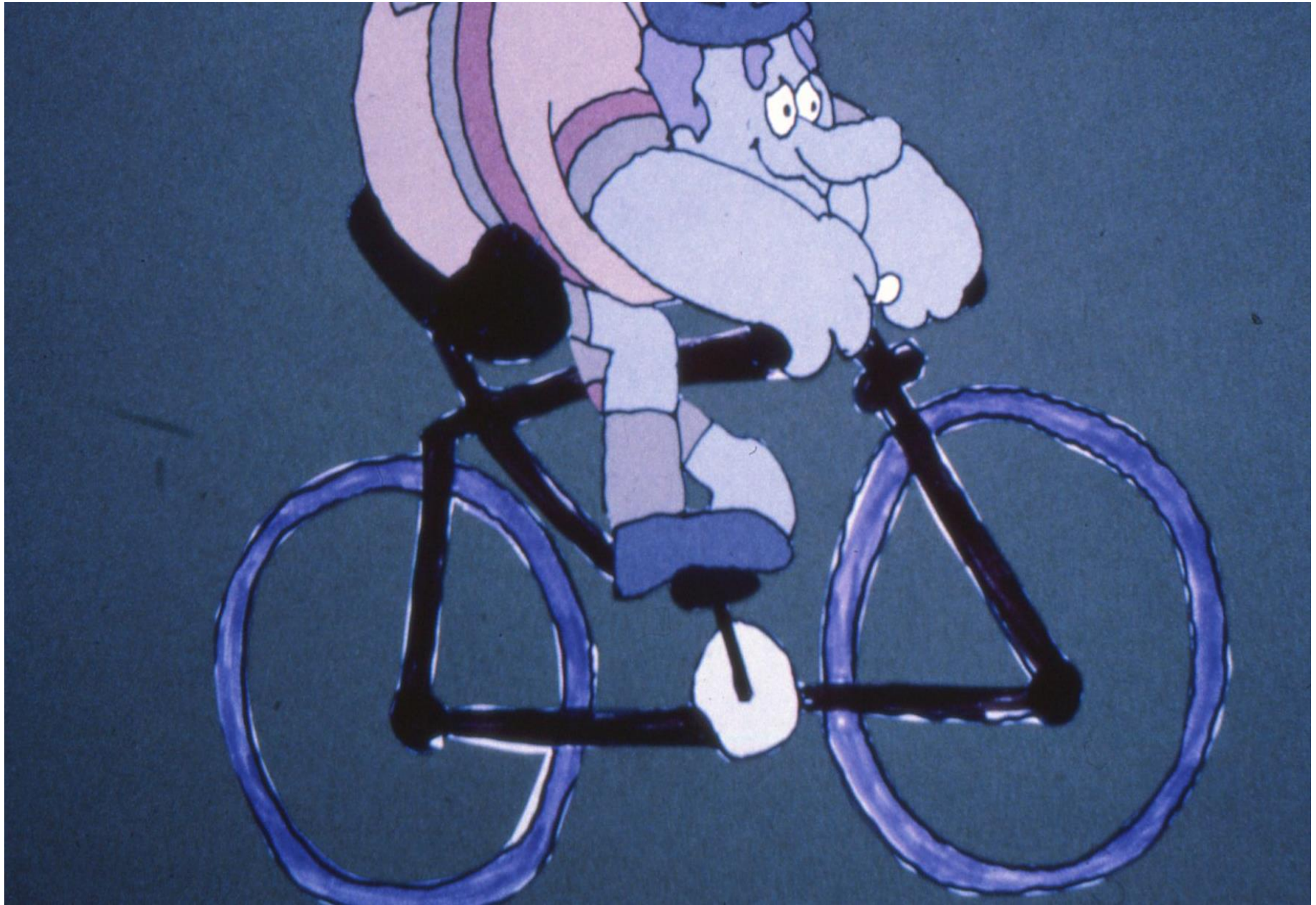
TENDON and SCAR



Rehab – inappropriate / inadequate / incomplete !!







SUMMARY

