B.A.R.I
BORDEAUX ARTHROPLASTY RESEARCH INSTITUTE

Chirurgie articulaire et prothétique
CLINIQUE DU SPORT
BORDEAUX - MERIGNAC

Performing a 'Calipered KA TKA'

Charles Rivière

Toulouse 2023

PRACTICAL COURSE ORTHOPEDICS

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Disclosures

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  - Medacta
- I receive Royalties from:
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- I am in the Administrative Board of:
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SYSTEMATIC

PERSONALISED

Anatomical Alignment

JLO

Constitutional Alignment

HKA

KA (uKA, rKA, riKA/FA KA start)

Knee Anatomy

ANATOMICAL

0's

MECHANICAL

Knee Surgery, Sports Traumatology, Arthroscopy
https://doi.org/10.1007/s00167-022-07013-3

EDITORIAL

Anatomical versus mechanical joint reconstruction: time to pick your surgical philosophy!

Charles Rivière[1,2,3,4] · Loïc Villet[1,2,3] · Gabriel Bouchard Roby[1,2,3]

SYSTEMATIC

PERSONALISED

Anatomical Alignment

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Constitutional Alignment

HKA

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

Knee Anatomy

ANATOMICAL

1970's 1980's 2010's 2020's

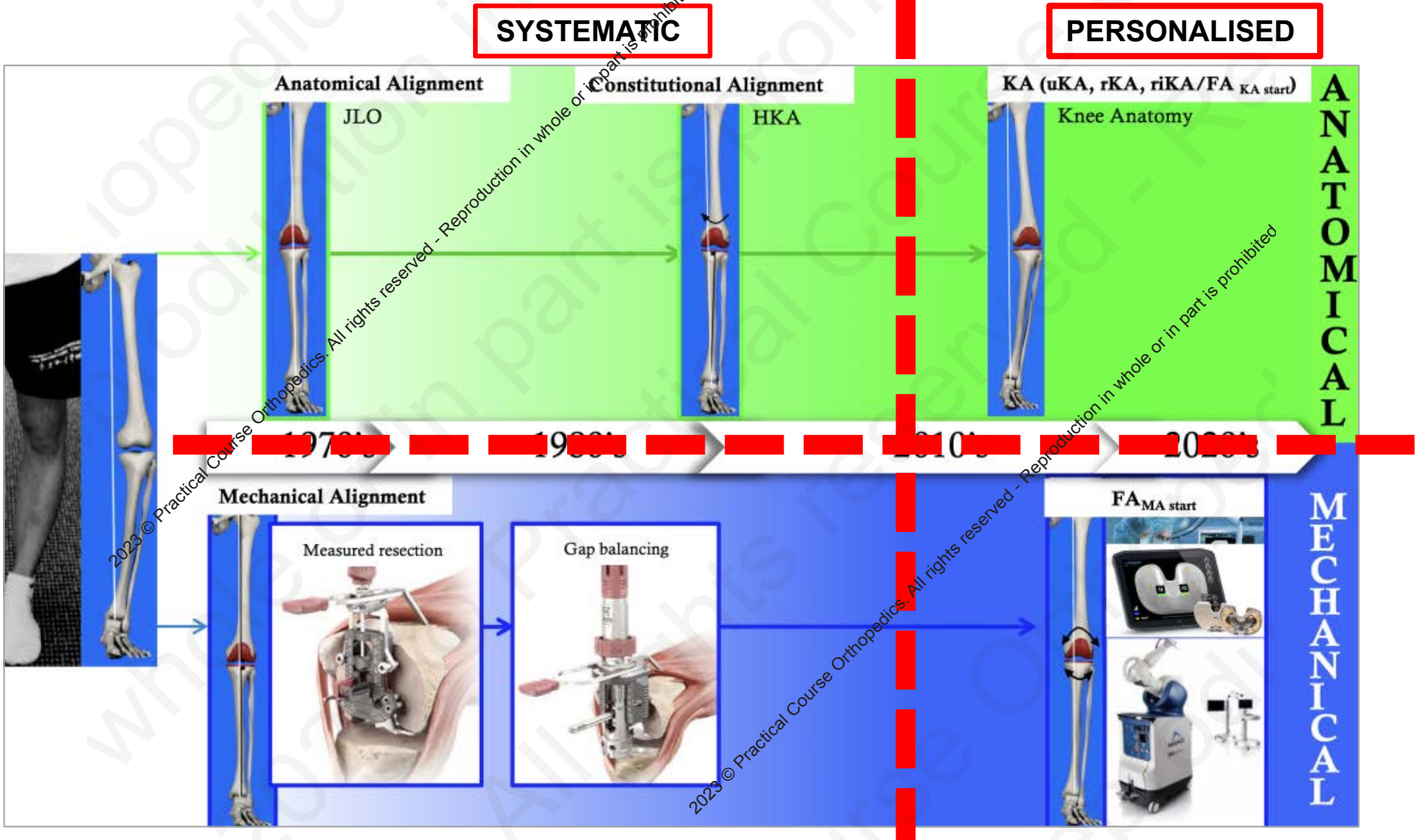
Mechanical Alignment

Measured resection

Gap balancing

FA$_{MA\ start}$

MECHANICAL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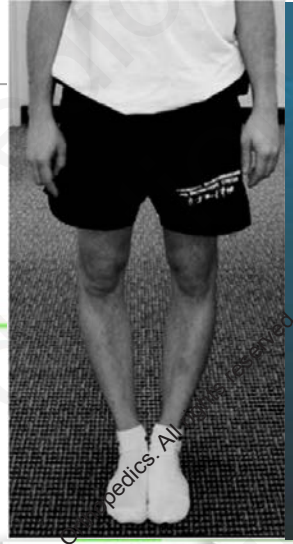
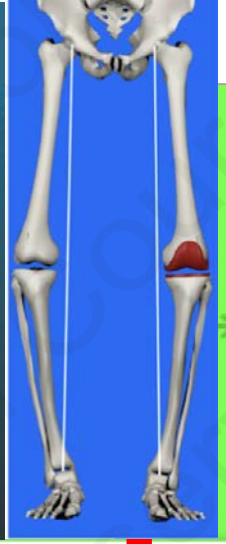
PERSONALISED





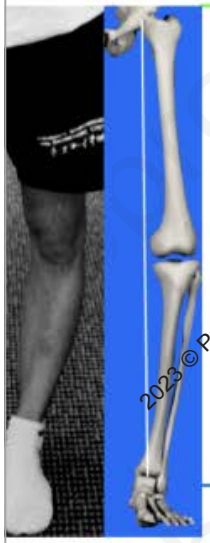
KA (uKA, rKA, riKA/FA KA start)

Knee Anatomy

1 Philosophy:
Physiological TKA

Xs techniques:
uKA, rKA, riKA/FA$_{KA}$

ANATOMICAL



1970's 1980's 2010's 2020's

Mechanical Alignment

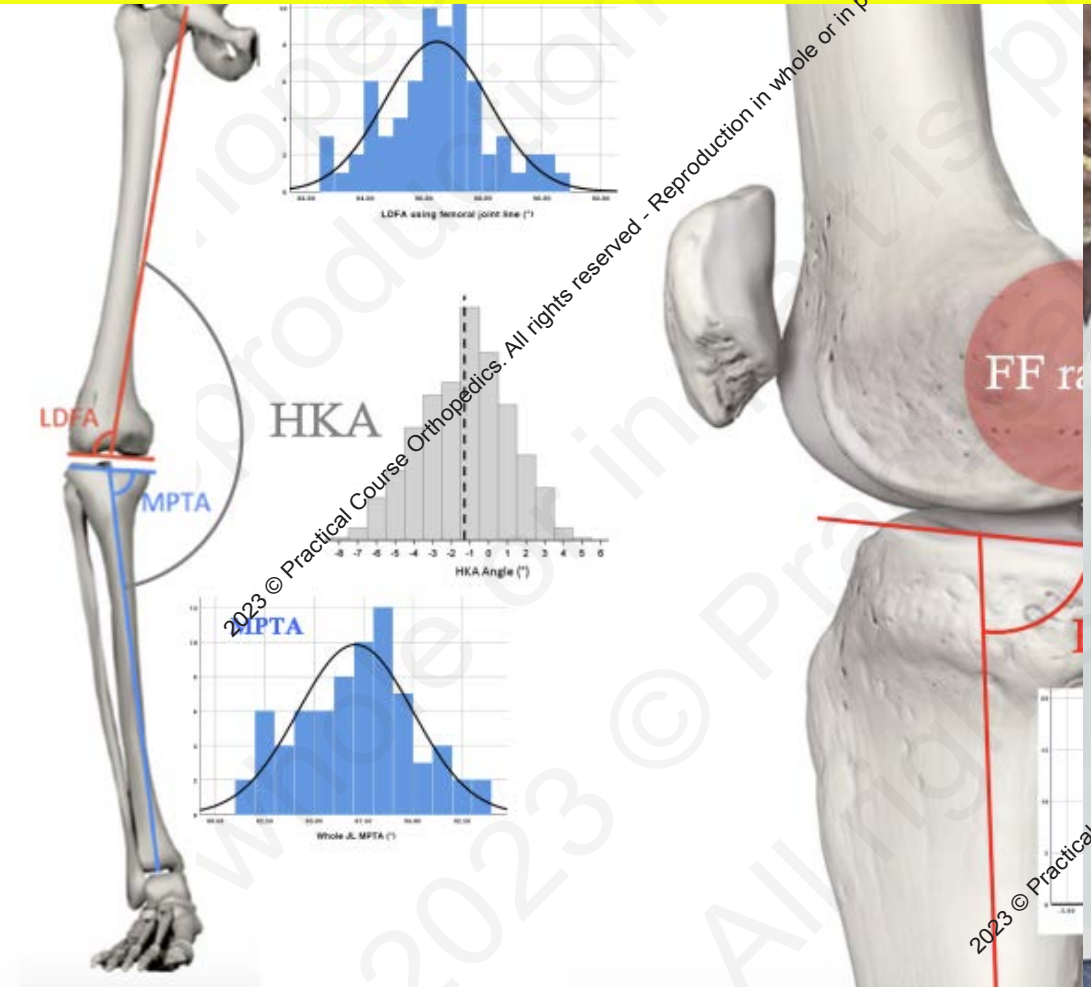
Measured resection

Gap balancing

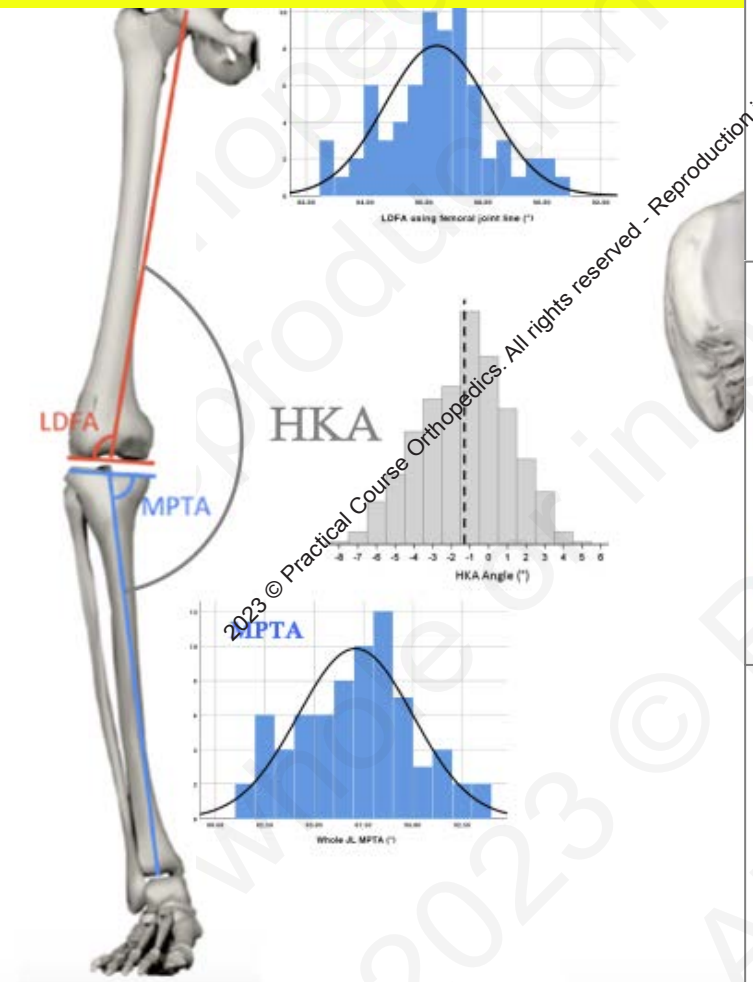
FA$_{MA start}$

MECHANICAL

We are **UNIQUE** from the **OUTSIDE**…and the **INSIDE**



We are **UNIQUE** fro



Knee Surgery, Sports Traumatology, Arthroscopy
https://doi.org/10.1007/s00167-019-05508-0

KNEE

Phenotyping the knee in young non-osteoarthritic knees shows a wide distribution of femoral and tibial coronal alignment

Michael T. Hirschmann[1,3] · Lukas B. Moser[1,3] · Felix Amsler[5] · Henrik Behrend[4] · Vincent Leclercq[6] · Silvan Hess[1,2]

Contents lists available at ScienceDirect
The Journal of Arthroplasty
journal homepage: www.arthroplastyjournal.org

Evaluation of the 3-Dimensional, Weight-Bearing Orientation of the Normal Adult Knee

Denis Nam, MD [a], Ritesh R. Shah, MD [b], Ryan M. Nunley, MD [a], Robert L. Barrack, MD [a]

The Chitranjan Ranawat Award

Is Neutral Mechanical Alignment Normal for All Patients?

The Concept of Constitutional Varus

Johan Bellemans MD, PhD, William Colyn MD,
Hilde Vandenneucker MD, Jan Victor MD, PhD

SYSTEMATIC

PERSONALISED

Anatomical Alignment

JLO

Constitutional Alignment

HKA

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

Knee Anatomy

ANATOMICAL

SYSTEMATIC ALTERATION of

- ❑ Knee Anatomy
- ❑ Knee Laxity
- ❑ Knee Kinematics

- ❑ Altered joint perception
- ❑ Residual symptoms
- ❑ Dissatisfied patients

FA $_{MA\ start}$

MECHANICAL

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Knee Anatomy

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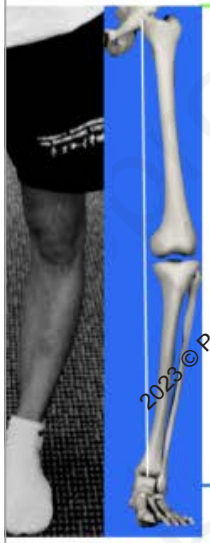
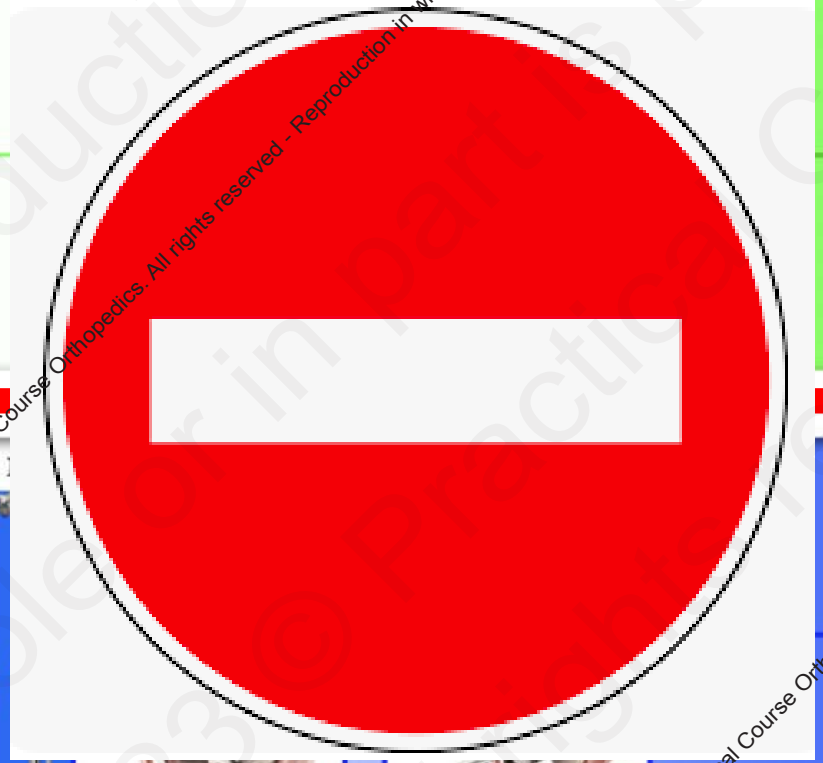
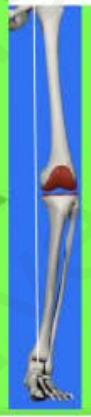






FA$_{MA\ start}$

MECHANICAL

Anatomical Alignment

Frontal Joint Line Obliquity

Constitutional Alignment

Varus Limb Deformity

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

Knee Anatomy

= Personalised & Physiological TKA

ANATOMICAL

1970's | 1980's | 2010's | 2020's

Our Futur !

Mechanical Alignment

Measured resection

Gap balancing

FA$_{MA\ start}$

MECHANICAL

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

Knee Anatomy

= Personalised & Physiological TKA

ANATOMICAL

Our Futur !

1- **More physiological** (~ native knee biomechanics)
2- **More reproducible**
   - Reliable landmarks (articular surfaces)
   - Caliper checks (sequential step process)
   - No ligament release (bony procedure)
3- **Feels better** (FJS)
4- **Low maintenance** (rare residual symptoms, rare complications)
4- **Good Longevity so far** (RSA, biomechanical, registry and clinical studies)
5- **For everyone** (rKA/FA$_{(KA\ start)}$ for extreme anatomy and/or lateral laxity and/or patella tracking)

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

Knee Anatomy

= Personalised & Physiological TKA

ANATOMICAL

Manual instrumentation	CAS/ROBOTICS	PSI

= Calipered KA Technique

KA (uKA, rKA, riKA/FA $_{\text{KA start}}$)

Knee Anatomy

= Personalised & Physiological TKA

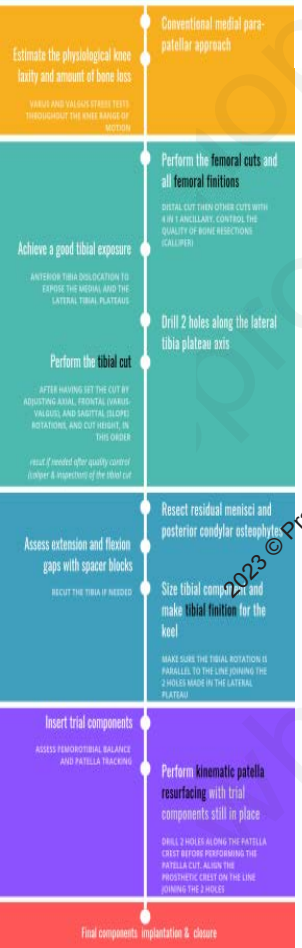
ANATOMICAL

Manual instrumentation

= Calipered KA Technique

My CHOICE

Calipered KA-TKA



Calipered KA Technique

- **Measured resection** (F or T first)
- **Posterior referencing**
- **Pure bony procedure** (collateral ligaments sparing)
- **Sequential step process** (step → quality check → step → quality check → etc.)

KA (uKA, rKA, riKA/FA $_{\text{KA start}}$)

Knee Anatomy

= Personalised & Physiological TKA

ANATOMICAL

Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

X

Conventional medial para-patellar approach

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Resect residual menisci and posterior condylar osteophyte

Size tibial components and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Cartilage thickness check

Calipered KA-TKA

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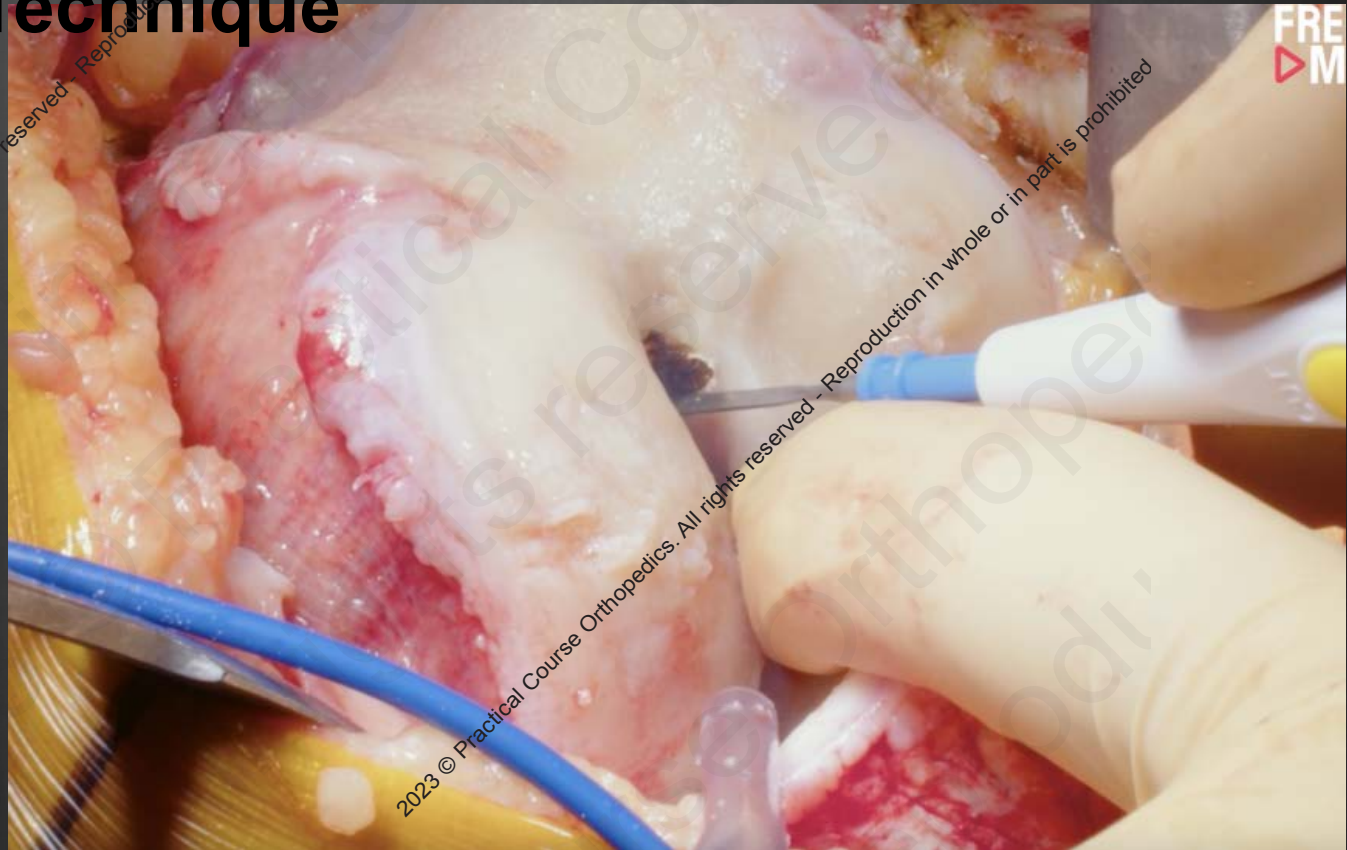

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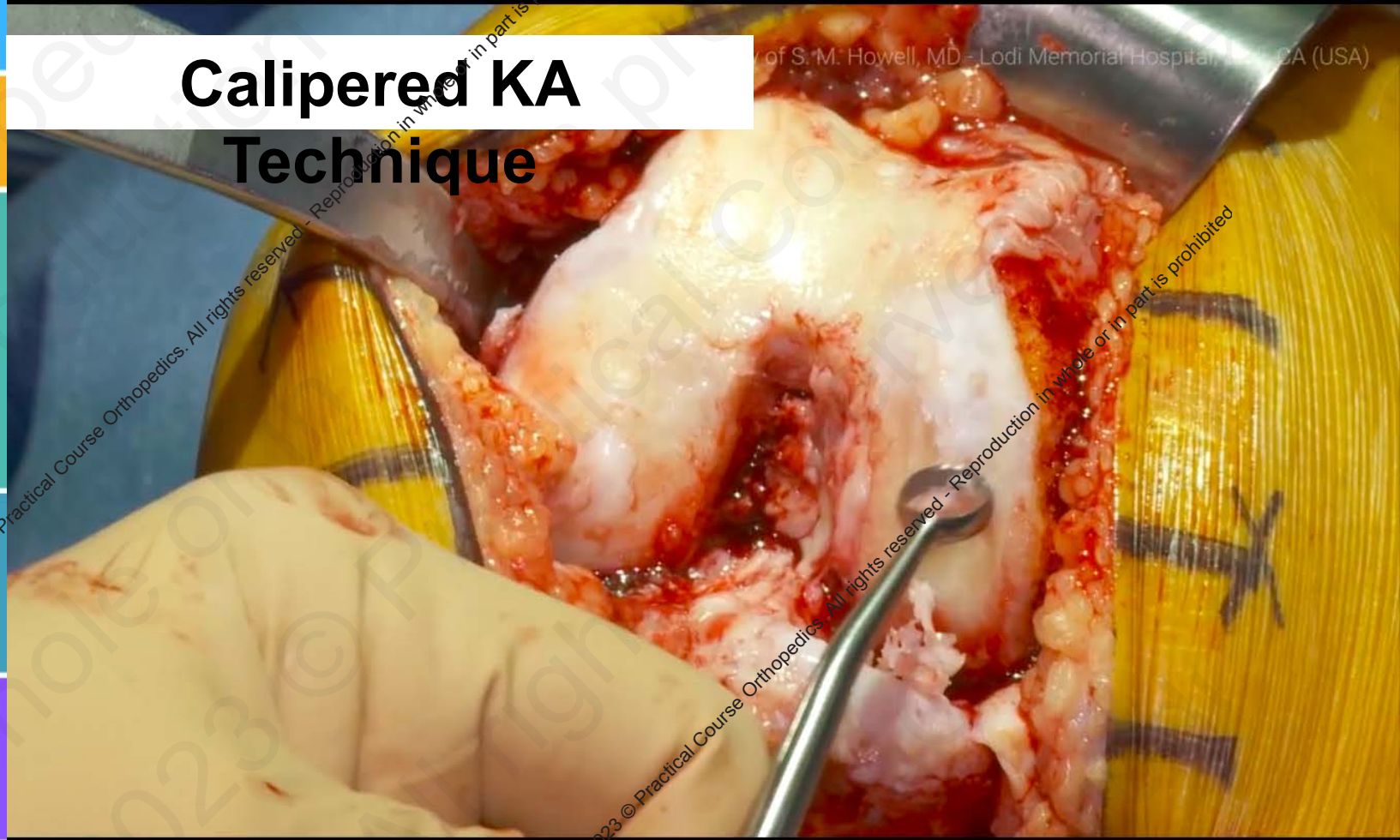

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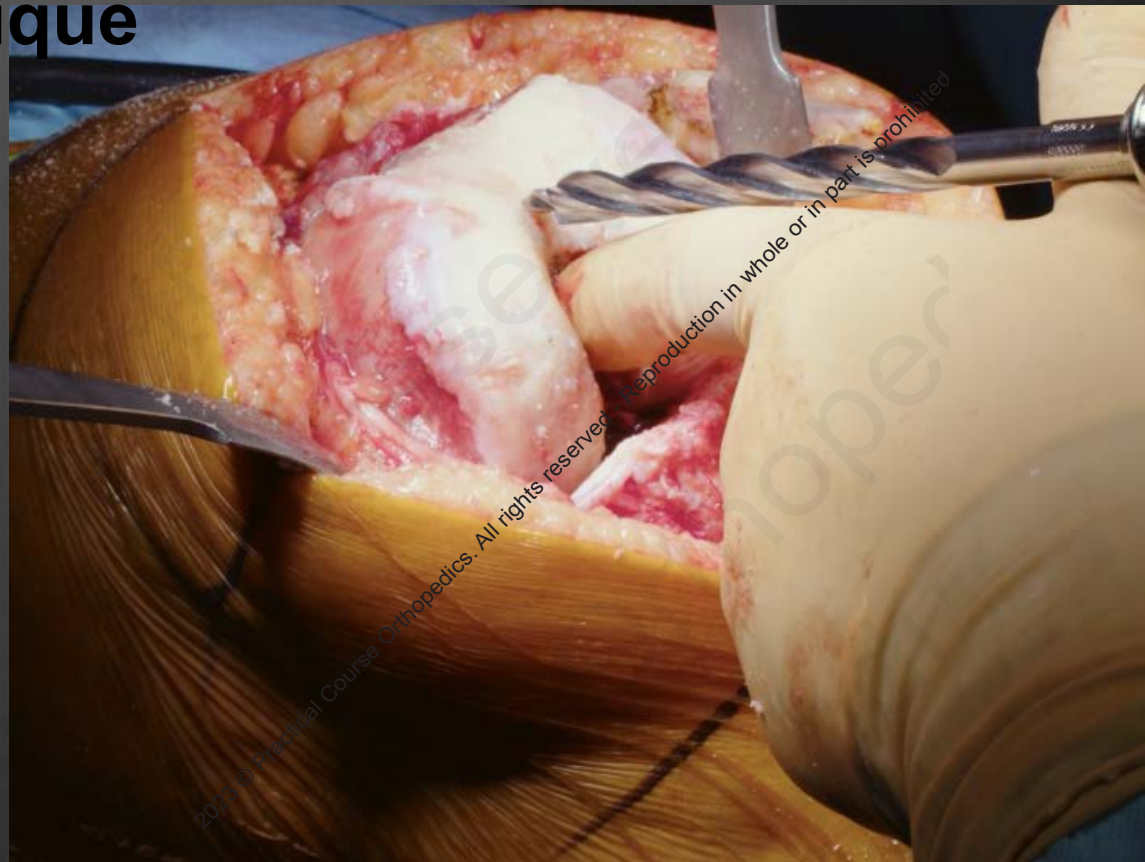

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Calipered KA Technique

Distal condyle check

Calipered KA-TKA

Conventional medial para-patellar approach

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Final components implantation & closure

Calipered KA Technique

Parallel to PCL

Calipered KA-TKA

Conventional medial para-patellar approach

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Calipered KA Technique

NEW F sizing pholosophy

…Optimise the restoration of the native trochlea offset

Calipered KA Technique

NEW F sizing pholosophy

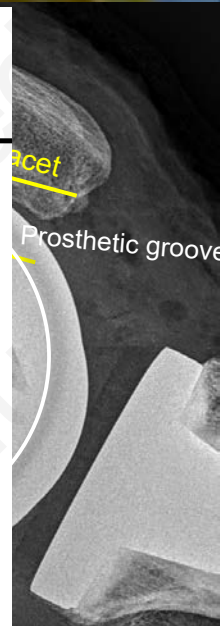
…Optimise the restoration of the native trochlea offset

Knee Surgery, Sports Traumatology, Arthroscopy
https://doi.org/10.1007/s00167-023-07405-z

EDITORIAL

Anatomical restoration of the anterior femoral compartment when performing KATKA: the end of the flush anterior femoral cut dogma!

Charles Rivière[1,2,3] · Loïc Villet[1,2,3] · Gabriel B. Roby[1,2,3]



Calipered KA-TKA

Conventional medial para-patellar approach

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

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Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

X

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial components and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Posterior condyle check

Calipered KA-TKA

Conventional medial para-patellar approach

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

X

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

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recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Trochlea groove check

Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

X

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

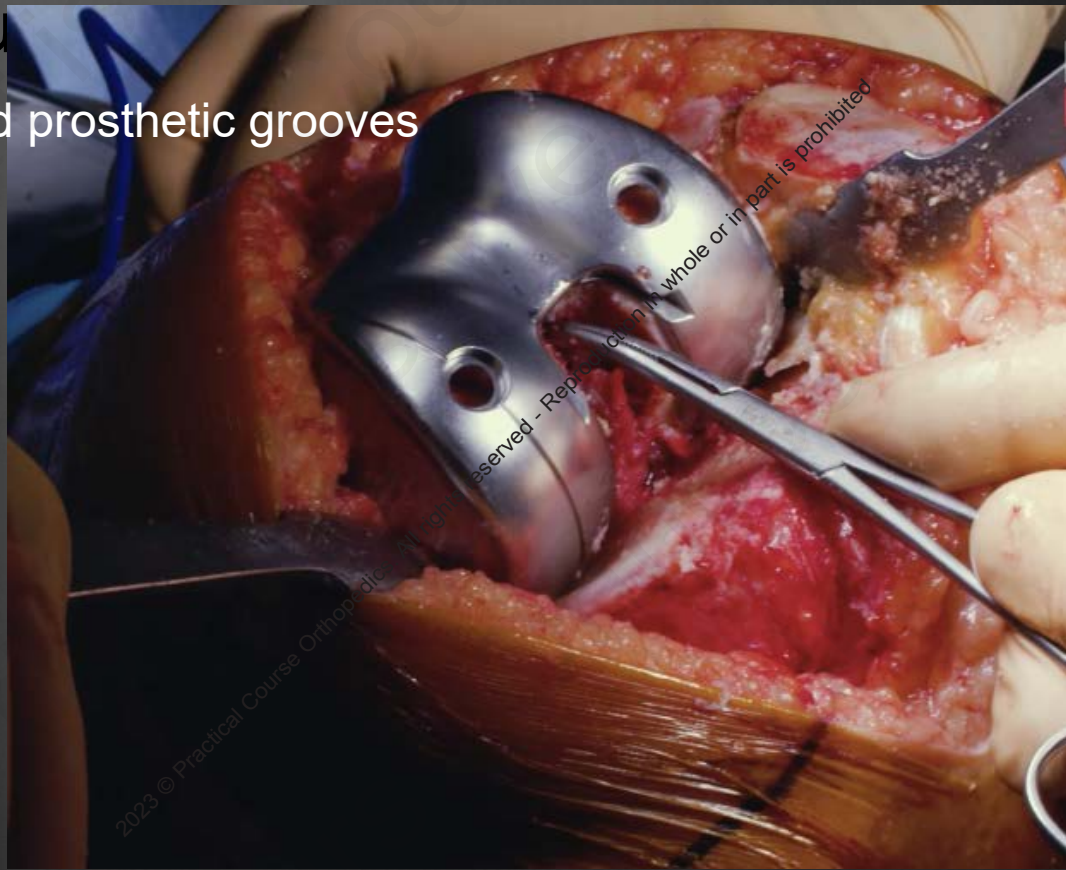
Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Techniqu

Co-align native and prosthetic grooves



Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

X

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

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Assess extension and flexion gaps with spacer blocks

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Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

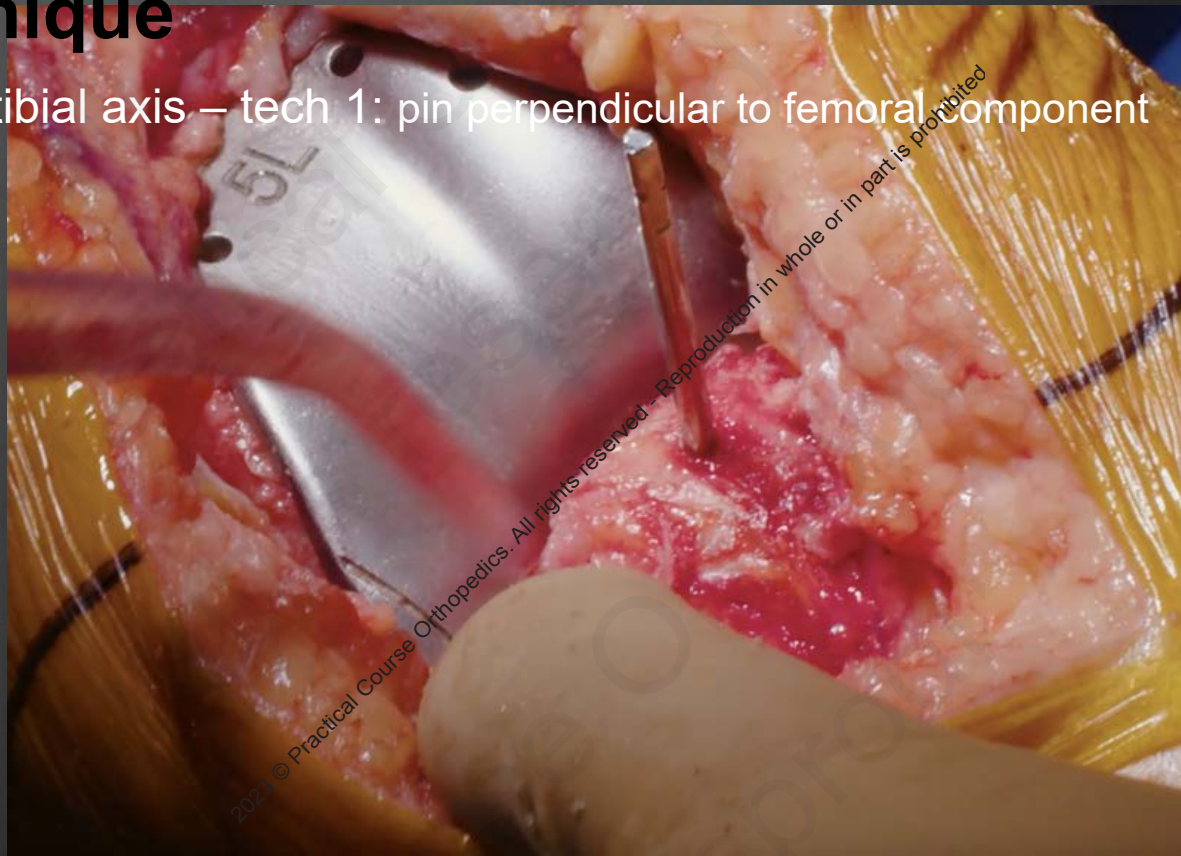
Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Mark the AP tibial axis – tech 1: pin perpendicular to femoral component



Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

X

Perform the femoral cuts and all femoral finitions

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Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

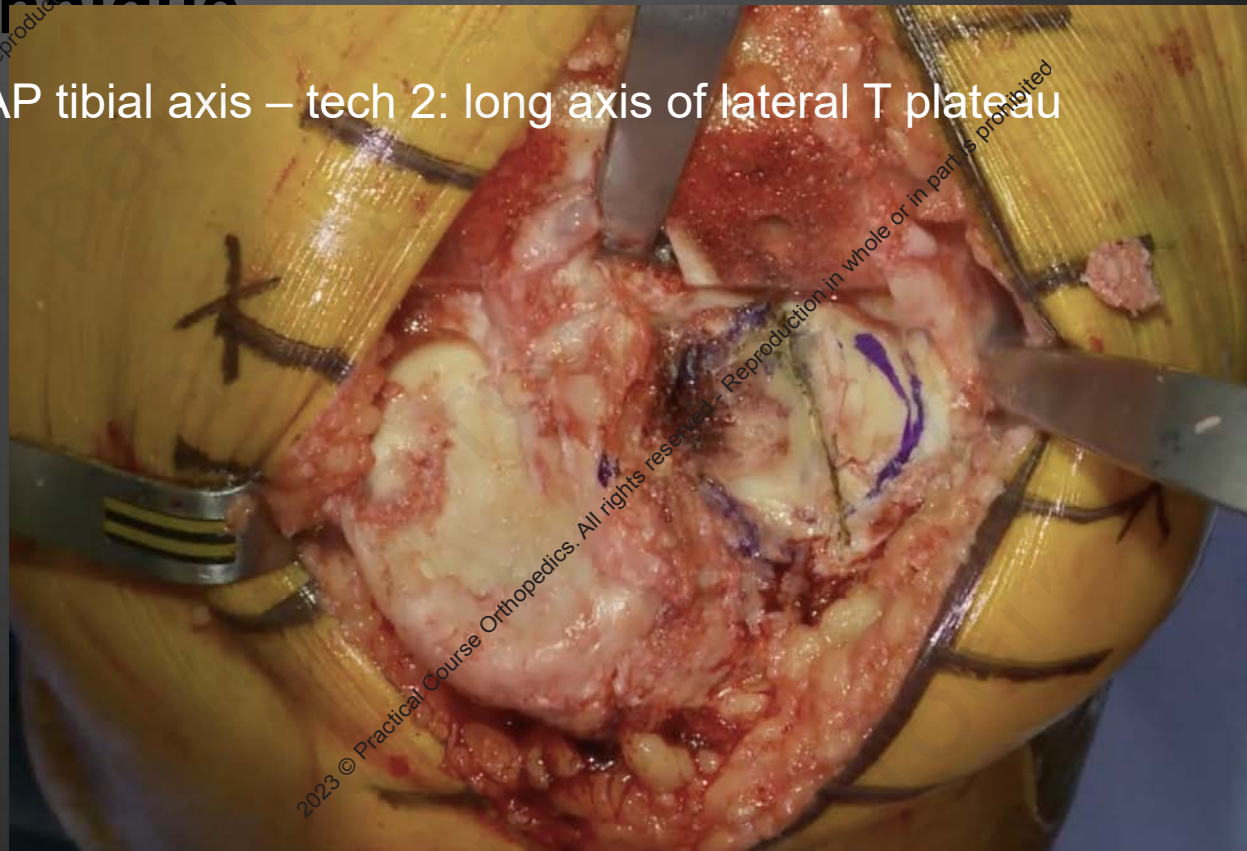
Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Mark the AP tibial axis – tech 2: long axis of lateral T plateau



Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

X

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

result if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial components and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

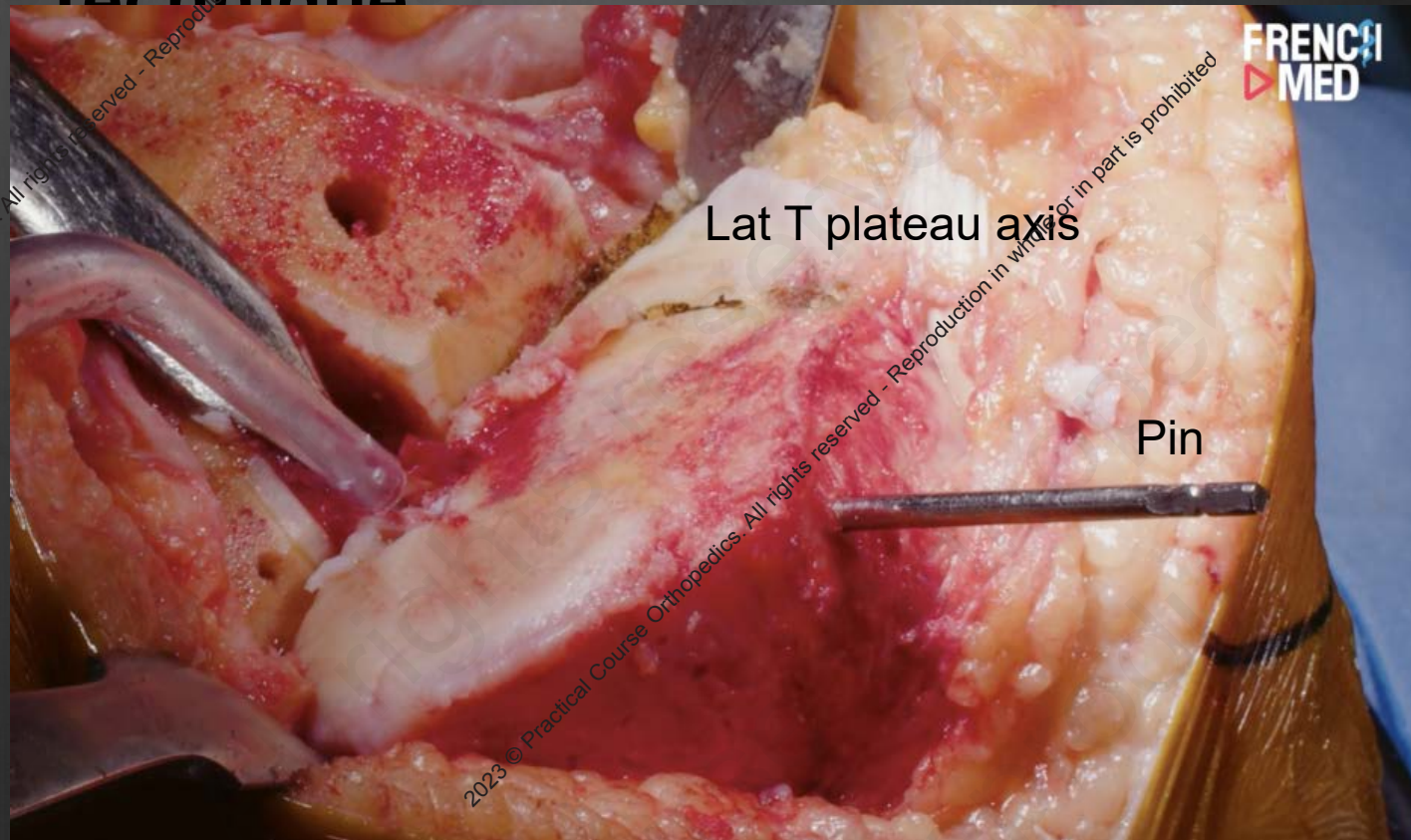
ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique



Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

result if needed after quality control (caliper & inspection) of the tibial cut

Drill 2 holes along the lateral tibia plateau axis

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Resect residual menisci and posterior condylar osteophyte

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

VV setting

10mm LATERAL STYLUS

10mm MEDIAL STYLUS

Calipered KA-TKA

Conventional medial para-patellar approach

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophytes

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Post T slope setting

ANGEL WING
(medial plateau slope)

Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAU

X

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

recut if needed after quality control (caliper & inspection) of the tibial cut

Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Post T slope check

Calipered KA-TKA

Conventional medial para-patellar approach

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAU

X

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

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Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Medial and lateral T plateaus check

Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss
VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

Achieve a good tibial exposure
ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Perform the femoral cuts and all femoral finitions
DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Perform the tibial cut
AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER
recut if needed after quality control (caliper & inspection) of the tibial cut

Drill 2 holes along the lateral tibia plateau axis

Assess extension and flexion gaps with spacer blocks
RECUT THE TIBIA IF NEEDED

Resect residual menisci and posterior condylar osteophyte

Size tibial component and make tibial finition for the keel
MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components
ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

Perform kinematic patella resurfacing with trial components still in place
DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

Calipered KA Technique

Mainly in situation of tibial bone loss (type 5 PAS classification)

Calipered KA-TKA

Estimate the physiological knee laxity and amount of bone loss

VARUS AND VALGUS STRESS TESTS THROUGHOUT THE KNEE RANGE OF MOTION

Conventional medial para-patellar approach

Perform the femoral cuts and all femoral finitions

DISTAL CUT THEN OTHER CUTS WITH 4 IN 1 ANCILLARY. CONTROL THE QUALITY OF BONE RESECTIONS (CALIPER)

Achieve a good tibial exposure

ANTERIOR TIBIA DISLOCATION TO EXPOSE THE MEDIAL AND THE LATERAL TIBIAL PLATEAUS

Drill 2 holes along the lateral tibia plateau axis

Perform the tibial cut

AFTER HAVING SET THE CUT BY ADJUSTING AXIAL, FRONTAL (VARUS-VALGUS), AND SAGITTAL (SLOPE) ROTATIONS, AND CUT HEIGHT, IN THIS ORDER

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Resect residual menisci and posterior condylar osteophyte

Assess extension and flexion gaps with spacer blocks

RECUT THE TIBIA IF NEEDED

Size tibial component and make tibial finition for the keel

MAKE SURE THE TIBIAL ROTATION IS PARALLEL TO THE LINE JOINING THE 2 HOLES MADE IN THE LATERAL PLATEAU

Insert trial components

ASSESS FEMOROTIBIAL BALANCE AND PATELLA TRACKING

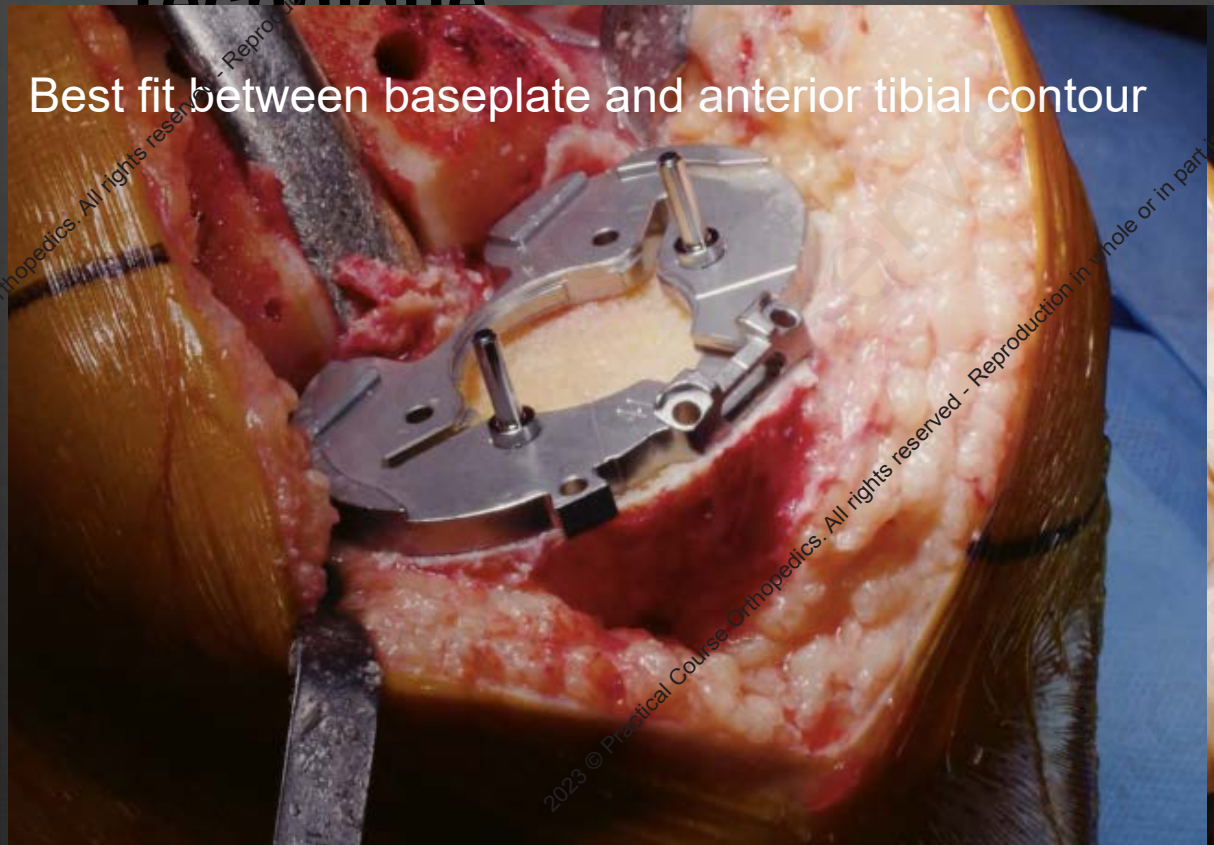
Perform kinematic patella resurfacing with trial components still in place

DRILL 2 HOLES ALONG THE PATELLA CREST BEFORE PERFORMING THE PATELLA CUT. ALIGN THE PROSTHETIC CREST ON THE LINE JOINING THE 2 HOLES

Final components implantation & closure

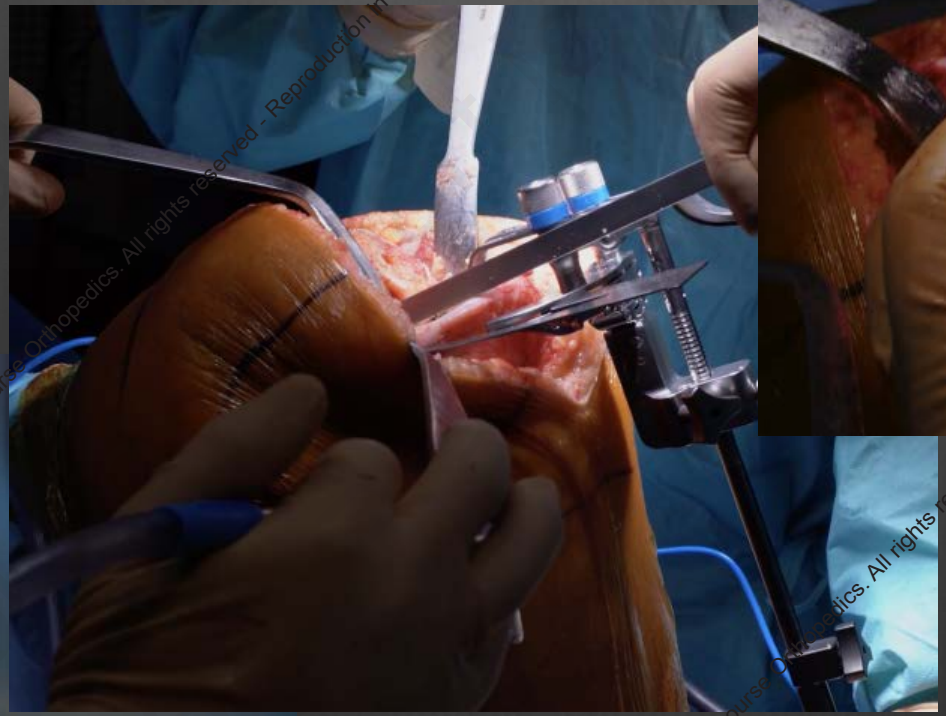
Calipered KA Technique

Best fit between baseplate and anterior tibial contour



Performing a ‘Callipered r/ri-KA TKA’

ILLUSTRATION 1: SAGITTAL PLANE



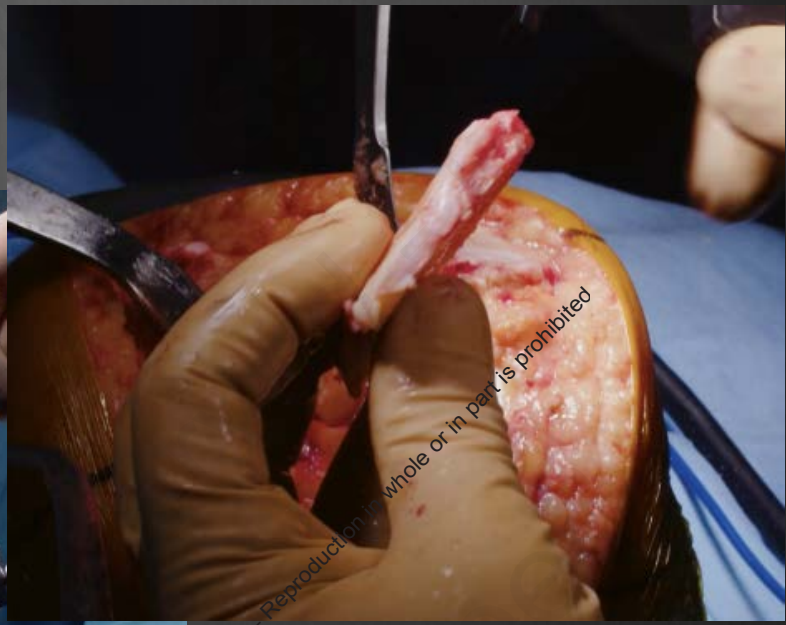
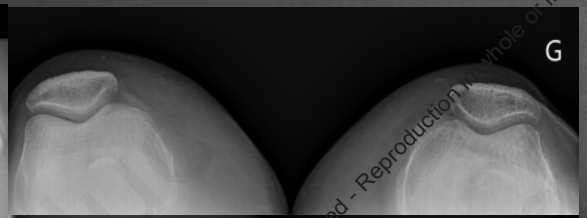
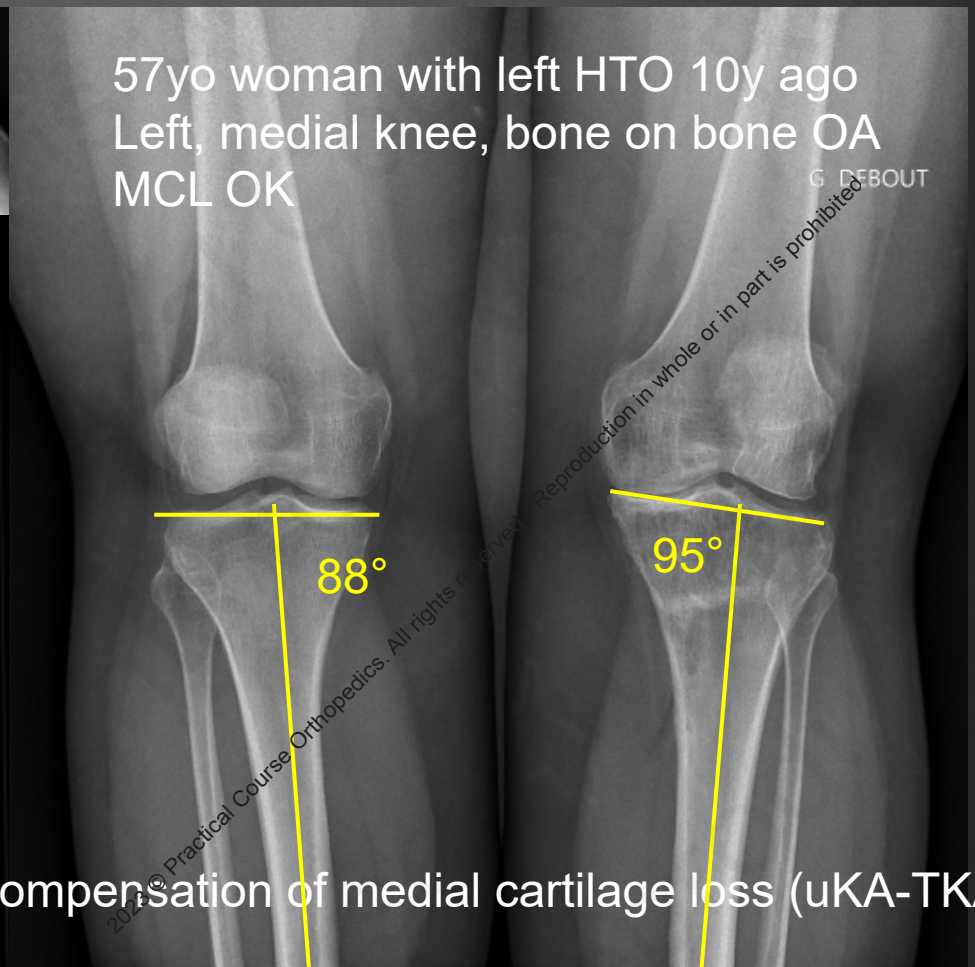


ILLUSTRATION 2: FRONTAL PLANE





2° valgus

6° valgus → 10° fixed valgus after compensation of medial cartilage loss (uKA-TKA)

ILLUSTRATION 2: FRONTAL PLANE

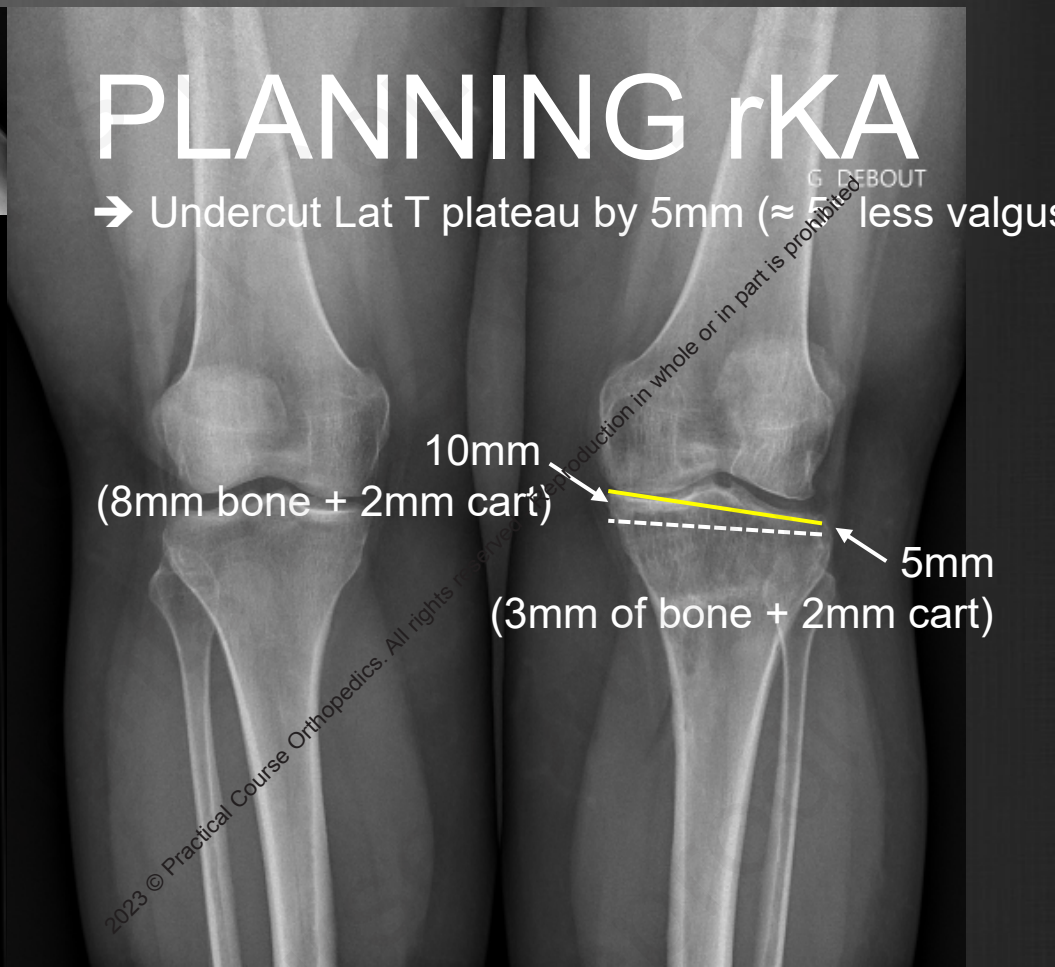


ILLUSTRATION 2: FRONTAL PLANE

Calipered rKA-TKA:

I don't think in terms of angles of alignment

but rather in terms of the level of alteration of the knee anatomy

TAKE HOME MESSAGE

Calipered KA Technique

- **Measured resection** (F or T first)
- **Posterior referencing**
- **Pure bony procedure** (collateral ligaments sparing)
- **Sequential step process** (step → quality check → next step → …)
- **Allows restrictions (r/ri [≈FA] KA)**
- **Simple, Reliable and Cost-Friendly**
- **NEW gold standard ?** 

KA (uKA, rKA, riKA/FA $_{KA\ start}$)

= Physiological TKA

ANATOMICAL

PERSONALIZED ARTHROPLASTY SOCIETY

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Chirurgie articulaire et prothétique

CLINIQUE DU SPORT

BORDEAUX - MERIGNAC

Merci !

B.A.R.I

BORDEAUX ARTHROPLASTY RESEARCH INSTITUTE