

Role of High Tibial Osteotomy and Epiphysiodesis in the management of OCD

Myles Coolican

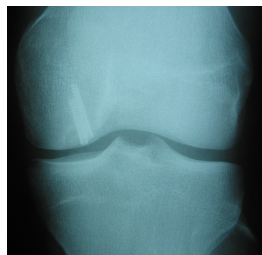
Val d'Isre 2014

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Realignment Surgery and OCD

Goals in managing OCD

- * Bony healing
- * Preserve overlying articular cartilage
- * Normal knee function
- * No further intervention




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Realignment Surgery and OCD

Natural History of OCD Treated or not

- * Heal
- * Heal with cartilage wear
- * Not heal-remain in situ
- * Detach-loose body
- * Secondary osteoarthritis

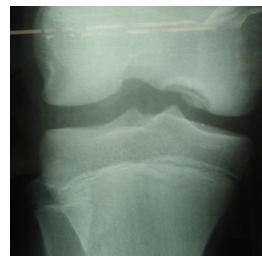


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Realignment Surgery and OCD

Best chance of a good result

- * Young patient
- * Compliant
- * Early presentation
- * Stable lesion
- * Good quality articular cartilage

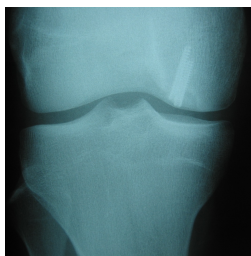


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Realignment Surgery and OCD

Management options

- * Non operative-rest and avoidance
- * Drill and/or fix fragment
- * Remove




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Realignment Surgery and OCD

Usual outcome

- * Bony healing deep surface
- * Defect ossifies/fills in
- * Leave screws in situ
- * Symptom free



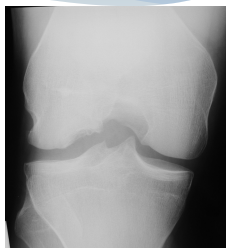
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Realignment Surgery and OCD

But -failure to heal
-sizeable defect

- * Non operative
- * Microfracture
- * Mosaicplasty
- * Cartilage restoration
- * Allograft

If considering any of these, must
check alignment and correct



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Realignment Surgery and OCD

Morrey 1989

- * First reference to HTO for OCD
- * Reported on 33 CWHTO's-younger
- * Average follow up 7.5 years
- * 3 following OCD
- * 4 OCD and medial meniscectomy
- * All had satisfactory results



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Realignment Surgery and OCD

Morrey 1989

"The best results were seen in
patients with Osteochondritis
Dissecans who typically have less
osteoarthritis than the other
groups"



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Realignment Surgery and OCD

Slawski 1997

- * Further publication on OCD
and realignment
- * Seven knees underwent
CWHTO at average age 32
- * Four had achieved bony
healing of fragment
- * Three fragment excised



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Realignment Surgery and OCD

Slawski 1997

- * All maligned varus-
average 0 degrees
tibio-femoral
- * Non involved limb
averaged 5 degrees
valgus
- * None had diffuse MC
articular wear on XR &
arthroscopy

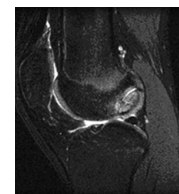


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Realignment Surgery and OCD

Slawski 1997

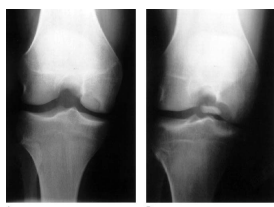
- * Corrected to average 9
degrees T/F valgus
- * Lysholm increased from 39
to 89 at 30 months
- * No further surgery



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Realignment Surgery and OCD

- * Epiphyseodesis
- * Nothing published in English literature

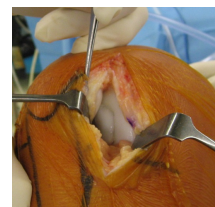


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Summary

High Tibial Osteotomy and OCD

- * Role is to unload
- * Indicated pain & malalignment
- * Best results with early surgery
- * Nothing in literature suggesting HTO improves healing by unloading
- * Nothing published on epiphyseodesis



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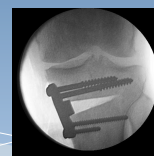
Thank You



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Survival of Opening Wedge HTO for Medial Compartment Osteoarthritis

Myles Coolican FRACS
David Parker FRACS
Amy Jin BE (Biomed)
Joe Lynch MSc
Corey Scholes PhD
Sydney Orthopaedic Research Institute



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High Tibial Osteotomy

- * Difficult to sell
- * Everyone has heard of arthroscopy and replacement
- * "You're going to break my leg...."
- * Most patients come with Xrays/MRI
- * No one arrives with long films



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High Tibial Osteotomy

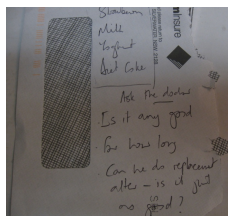
- * Explanation of the principles of surgery
- * Pamphlet on the operation
- * MRI and 4 foot films
- * Repeat appointment



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High Tibial Osteotomy

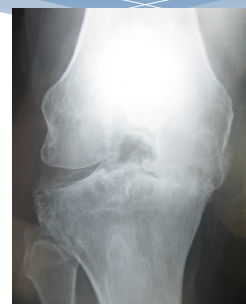
- * Is it any good
- * For how long
- * Can he do a replacement after
- * Is that just as good



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High Tibial Osteotomy

- * 75 year old male
- * Pain and poor mobility
- * Good general health
- * Fed up with a bad knee



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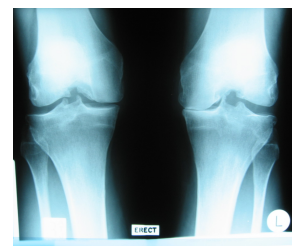
We're not crazy



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High Tibial Osteotomy

- * 53 year old electrician
- * Medial pain
- * Struggling to work
- * Young family



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High Tibial Osteotomy

- * Non operative management
- * Arthroscopy
- * Unicompartmental
- * TKR
- * Osteotomy



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High Tibial Osteotomy

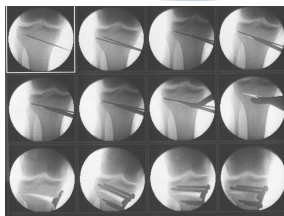
- * Non operative management
- * Arthroscopy
- * Unicompartmental
- * TKR
- * **Osteotomy**



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High Tibial Osteotomy

- * Navigate
- * To 2-3 degrees valgus
- * Opening wedge
- * Bank bone to defect
- * Non weight bearing 6 weeks



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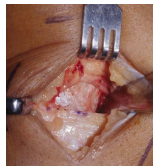
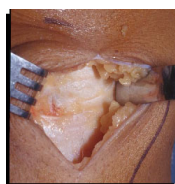
Proximal Tibial Osteotomy



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Opening Wedge HTO - Technique

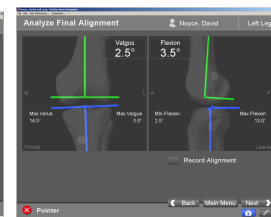
- * Medial incision
- * Superficial MCL / PT retracted



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Assessment of Sagittal Plane Alignment

- * Indirect measurement related to extension



Literature: Cartilage regeneration with HTO

- Several studies with 2nd look arthroscopy
 - Odenbring et al CORR 1992
 - Schultz & Gobel KSSTA 1999
 - Wakebayashi et al Arthroscopy 2002
 - Kanamiya et al Arthroscopy 2002
 - Koshino et al Knee 2003
 - Sterret & Steadman AJSM 2004
 - Matsunaga et al Knee 2007

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Articular Cartilage Changes in Patients With Osteoarthritis After Osteotomy

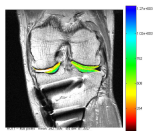
David A. Parker,^{1†} FRACS, Karen T. Beatty,¹ PhD, Bruno Giuffrè,¹ FRANZCR, Corey J. Scholes,¹ PhD, and Myles R. J. Coolican,¹ FRACS
Investigation performed at Sydney Orthopaedic Research Institute, Chatswood, New South Wales, Australia

* Am J Sports Med 2011 39: 1039

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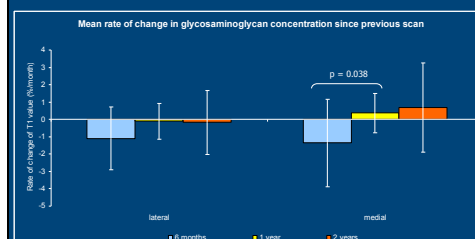
Methods

- * Delayed Gadolinium Enhanced MRI of Cartilage (dGEMRIC)
- * uses negatively charged contrast agent (Gadolinium) to determine Glycosaminoglycan distribution within the cartilage



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Results



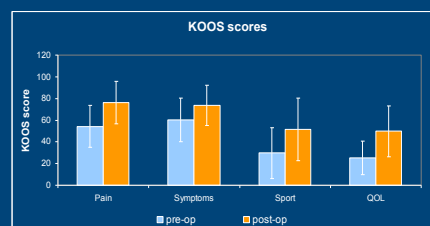
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Methods

- * 137 isolated HTO -115males 22 females
- * Patients were contacted either via telephone for clinical review
- * Further surgical procedures
- * Current activity levels (Tegner score)
- * Smoking status
- * Failure was defined as a need for conversion to Total Knee Arthroplasty
- * Kaplan-Meier Survivorship Analysis

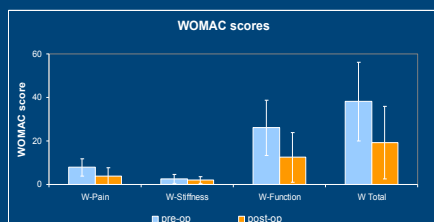
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Results



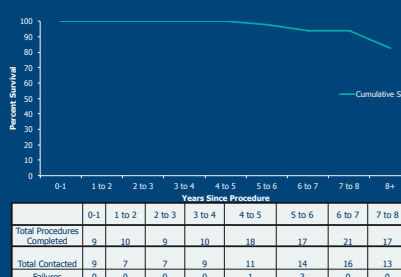
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Results



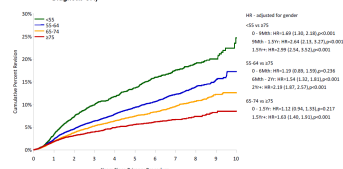
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Results – Cumulative Survival



Revision Rates – Unicompartmental by Age

Figure KP12: Cumulative Percent Revision of Primary Unicompartmental Knee Replacement by Age (Primary Diagnosis OA)

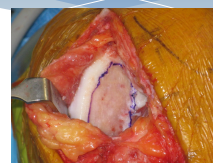


Number at Risk	0 Yr	1 Yr	3 Yr	5 Yr	7 Yr	10 Yr
<55	4814	4389	3167	2099	1151	65
55-64	11617	10284	7101	3006	2167	129
65-74	10076	9839	7005	5235	3026	106
≥75	7006	6366	4839	3248	1693	73

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Conclusion: The “Ideal” Osteotomy

- * Careful patient selection
- * Computer navigation
- * Opening wedge (mostly)
- * Careful technique
- * Overcorrect 2-3 degrees, but vary with pathology
- * Stable fixation & early motion
- * Appropriate ancillary procedure
- * Careful follow up with further evolution



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Osteotomy-need to know

- * If I have a TKR afterwards-is it as good as a first up



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Thank you



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