

Articular cartilage damage in the knee: a cutting-edge update.

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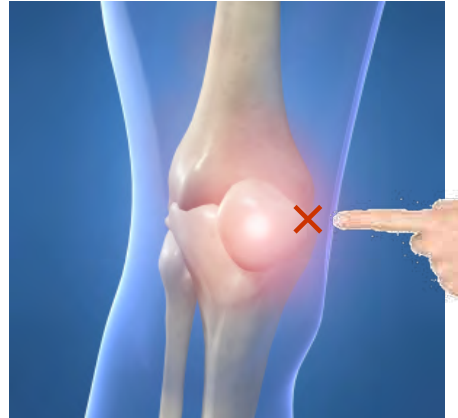
Articular cartilage



MRI



Symptoms and Signs?



X-rays



ARTHROSCOPY Grade III chondral damage



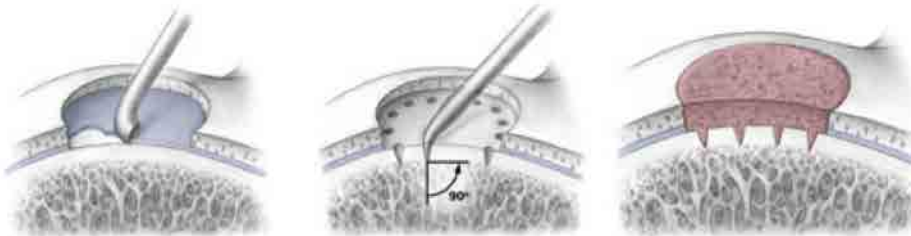
Abrasion chondroplasty



Radiofrequency chondroplasty



Microfracture



'Nanofracture'



Stryker Phoenix



Larger full-thickness defects

- ACI / MACI
- AMIC (Chondrotissue)
- Focal resurfacing (Episealer)
- Custom-made partial knee replacement
- Custom-made total knee replacement

ACI / MACI



Chondrocyte Harvest



Chondrocyte Implantation

ACI / MACI



Spherox (Codon)???

Chondrotissue grafting



AMIC

Open CT grafting




Open CT grafting



Open CT grafting

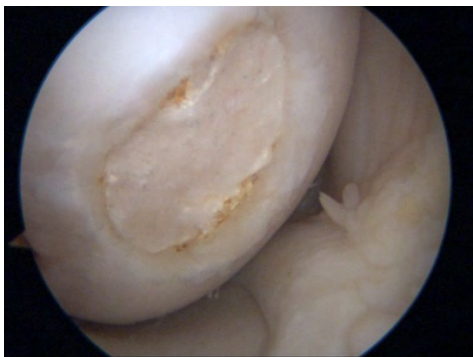


 Vivostat®

Open CT grafting



Arthroscopic CT grafting



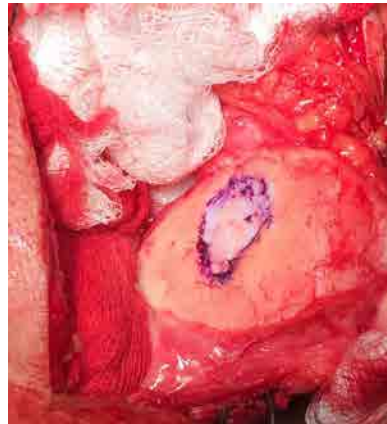
Arthroscopic CT grafting



Arthroscopic CT grafting



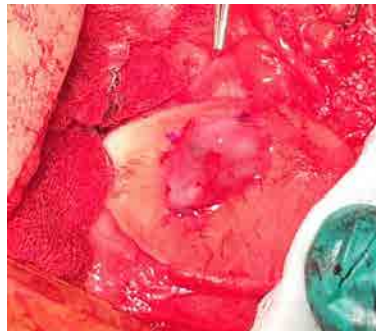
Chondrotissue to patella



Chondrotissue to patella



Chondrotissue to patella



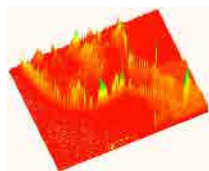
Re-look arthroscopy @ 9/12



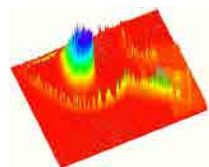
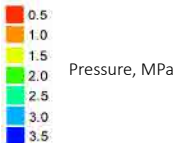
Chondrotissue vs ACI/MACI

	ACI / MACI	Chondrotissue
Number of ops	x2 (1 harvest, 1 implant)	x1
+ Re-scope	25% (op x3)	No
Graft properties	Delicate	Robust
'Spare' availability	No	Yes – 'off-the-shelf'
Tissue formed	Hyaline-like	Hyaline-like
Results	80%	80%
Cost	>£8,000	£2,500
Readily available	NO	YES
What would I have?	X	✓

The consequences of meniscal loss

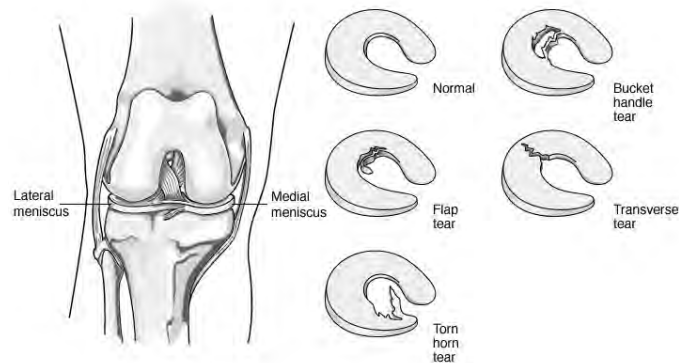


Meniscus intact

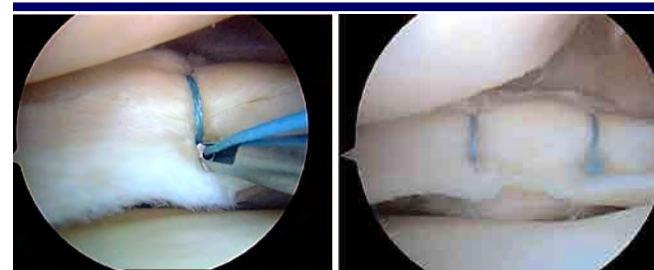


After meniscectomy

Meniscal tears



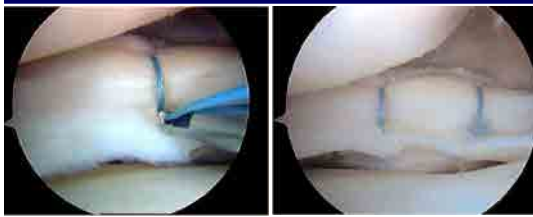
Meniscal repair



Literature:

- 15% repairable
- Success rate 50% - 90%

Meniscal repair



My results:

- 33% repairable
- Success rate 96% +ve, 81% excellent

Meniscectomy → Arthritis



Roos 1998. RR 14 at 21 yr FU

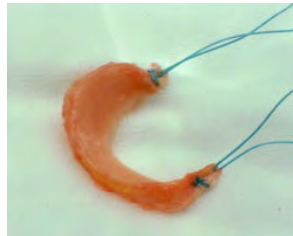
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What to do for the irreparable meniscus or where previously a total meniscectomy has been performed?

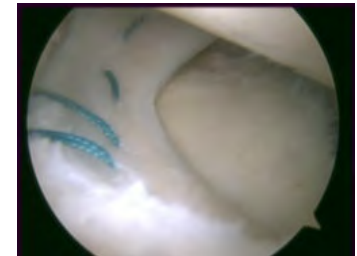
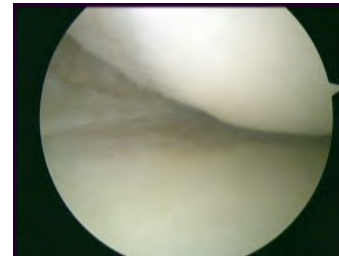
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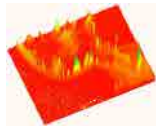
Meniscal Transplantation

Meniscal Transplantation

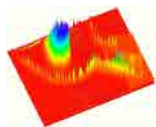
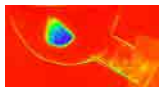


Meniscal Transplantation

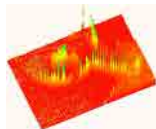
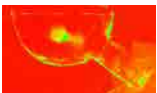




Intact



Meniscectomy



Allograft



Meniscal Transplantation

Verdonk *Acta Orthop Belg* 1998

Fresh grafts, sutured without bone plugs

54 grafts in 51 patients, average age 36

FU 4.6 years

83% good results, 10% removed

Concomitant procedures:

Tibial Osteotomy 14

ACL recon 5

Put it all together and what have we got?
Biological Knee Replacement!

Unstable?
→ *Stabilise!*

+ Malalignment
→ *Realignment osteotomy!*

What comes next?...

- Better meniscal scaffolds?
- Cells!!
- Growth factors
- 'Tissue Engineering'



Injecting stuff into knees?!?!?

Arthritis sufferers are being offered £6,000 stem cell 'wonder treatments' despite lack of evidence to show they work

- Private clinics are targeting UK's 10M sufferers with the Lipogems procedure
- It moves fat from patient's stomach and injects it into joints to regenerating cell
- Experts have rubbished the claims and warned patients against spending up to £6,000 on the procedure

By JONATHAN RUCES and STEPHEN ADAMS FOR THE MAIL ON SUNDAY

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Desperate arthritis sufferers are being offered expensive stem cell treatments by doctors who say it can dramatically improve their condition – despite scant medical evidence to support the claims.

Private clinics are tempting Britain's ten million arthritis sufferers with a procedure called Lipogems which removes fat from a patient's stomach and injects it into joints in the hope of regenerating cells.



and if you can't go biological...

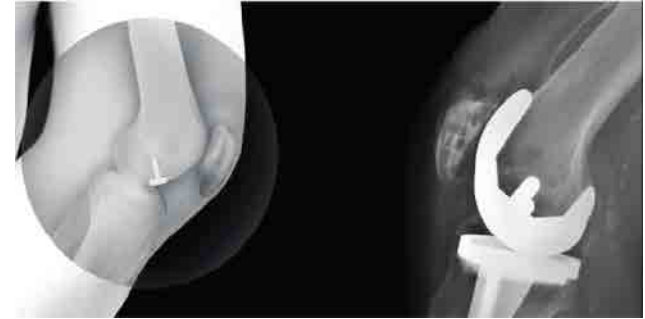
Go Metal !

Focal Resurfacing



Partial Replacements

Focal Resurfacing



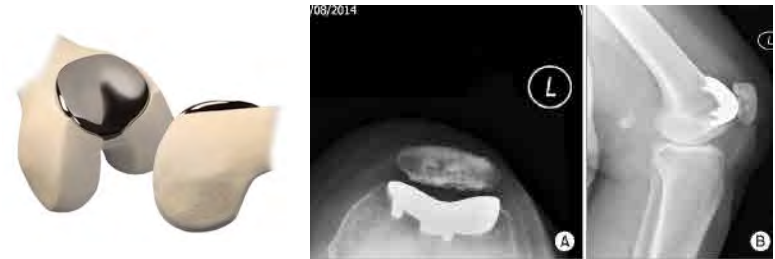
Patellofemoral Replacements



Total

Uni

Duo



Custom-made knees

