



SURGICAL TECHNIQUE REDUCING ANTERIOR KNEE PAIN FOLLOWING
BONE-TENDON-BONE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
IN FOOTBALL PLAYERS

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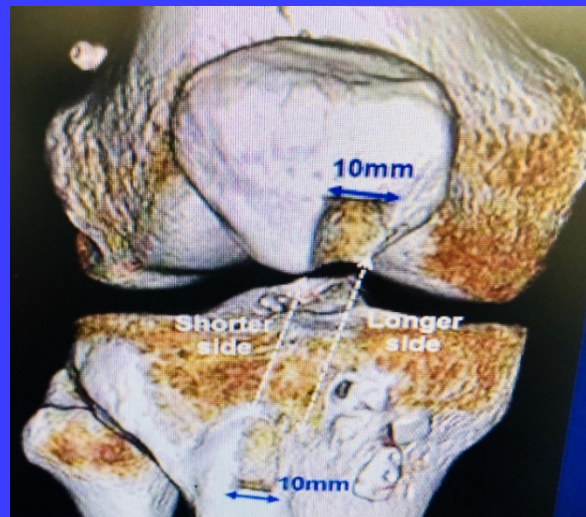
FINANCIAL DISCLOSURE





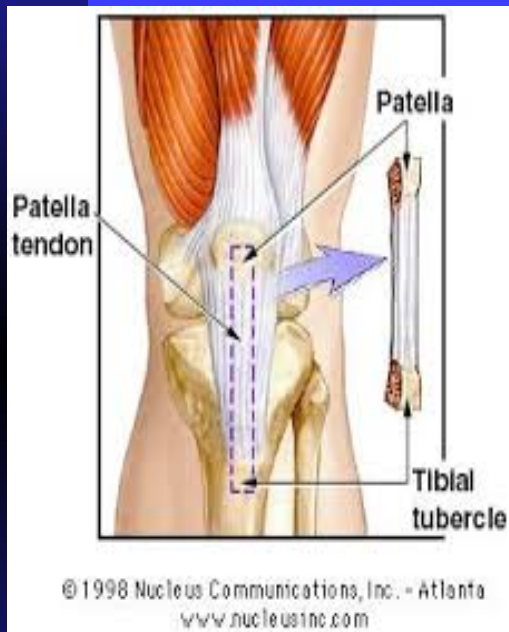
INTRODUCTION

Patella harvest donor site healing
after transplantation of autologous tibial bone graft & the maturation
process of the intra-articular graft in BTB ACLR
in football players





AIM

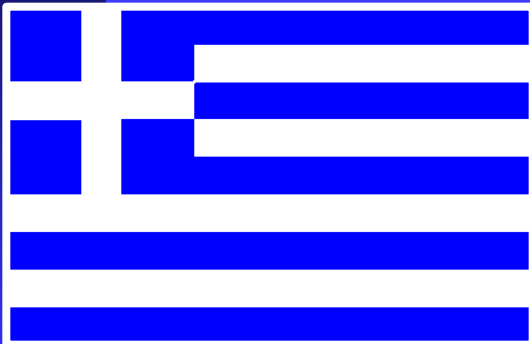


To investigate the graft maturation & the healing of the autologous cancellous tibial bone transplanted to the osseous defect at the patella harvest donor site in order to minimize the morbidity & prevent AKP

Retrospective Cohort Study

60 football players

They had underwent BTB autograft ACL reconstruction during the past 3 year period, from 2015-2018





MATERIALS AND METHODS

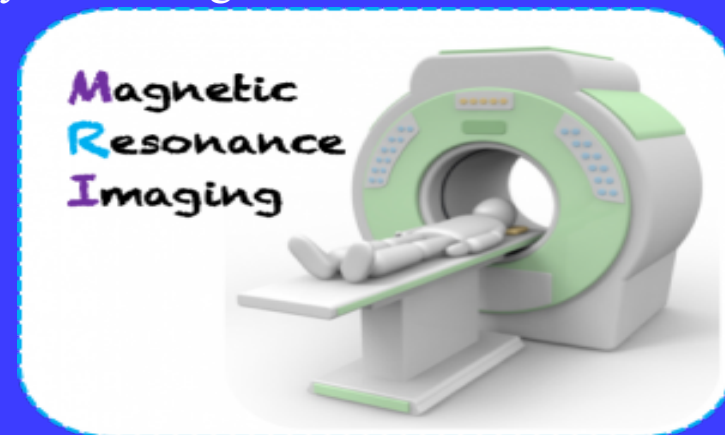
Bone healing was evaluated at 3, 6 and 12m post-op with axial and coronal spin echo T1 weighted and sagittal fat-suppressed turbo spin echo proton density MRI images

Graft maturation was evaluated at 3, 6 and 12m post-op sagittal $\pm$ fat-suppressed turbo spin echo proton density MRI images

MRI SIGNAL INTENSITY OF THE GRAFT

- ❑ Hypo-intense
- ❑ Hyper-intense
- ❑ Iso-intense

$SNQ = \frac{ACL \text{ graft signal} - PCL \text{ graft signal}}{\text{background signal}}$





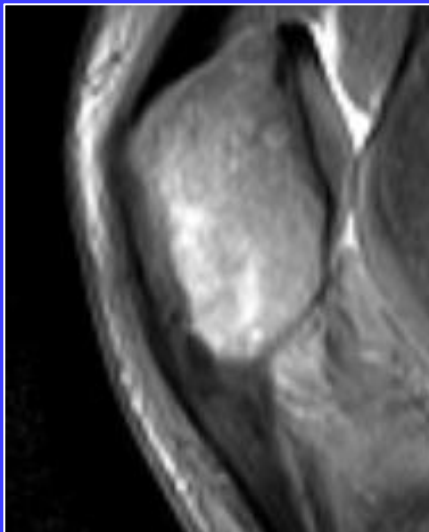
RESULTS

Bone healing with sufficient regeneration and lack of marrow edema was established in

0% (0/60) by **3m post-op**

25% (15/60) by **6m post-op**

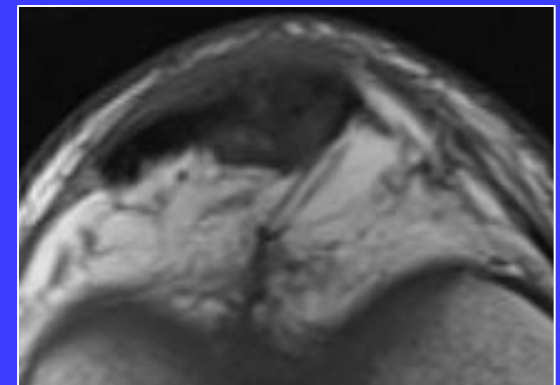
100% (60/60) by **12m post-op**



SAG PD-FS



COR T1



TRA T1



RESULTS

The MRI signal intensity of the graft was

Hypo-intense

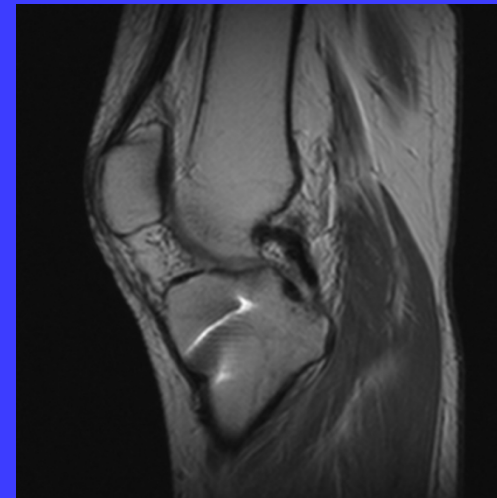
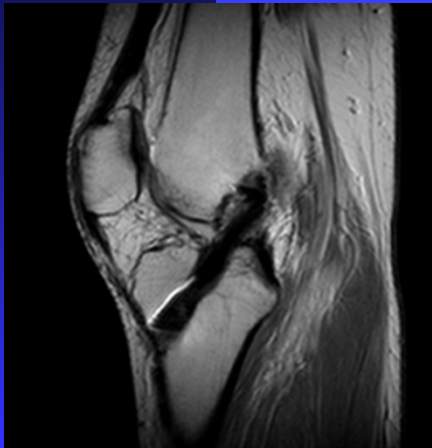
100% (60/60) by **3m post-op**

Hyper-intense

95% (57/60) by **6m post-op**

Iso-intense

33% (20/60) by **12m post-op**





RESULTS

AKPS & Kneeling Test at **3m post-op**

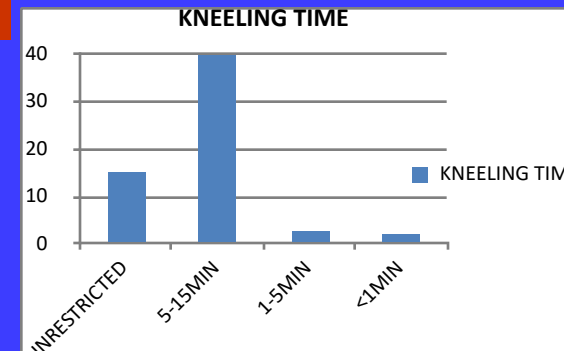
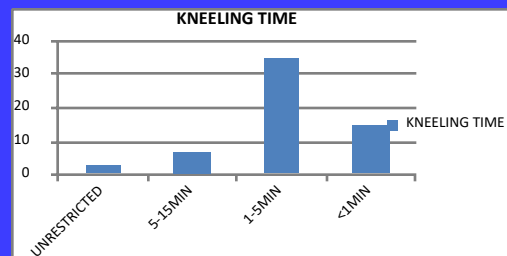
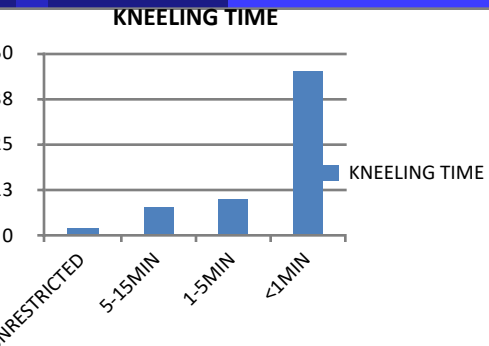
MEAN KUJALA SCORE: 43

AKPS & Kneeling Test at **6m post-op**

MEAN KUJALA SCORE: 73

AKPS & Kneeling Test at **12m post-op**

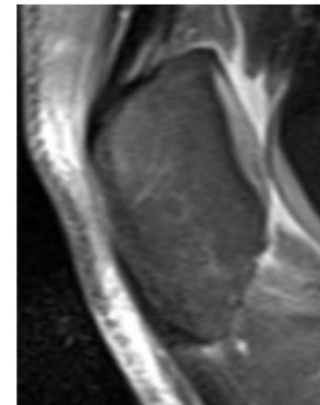
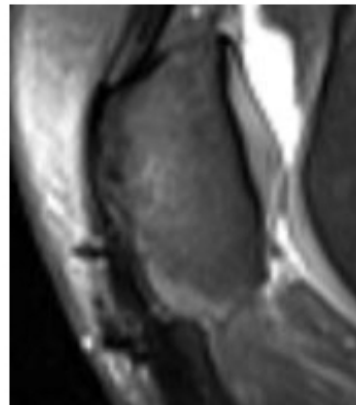
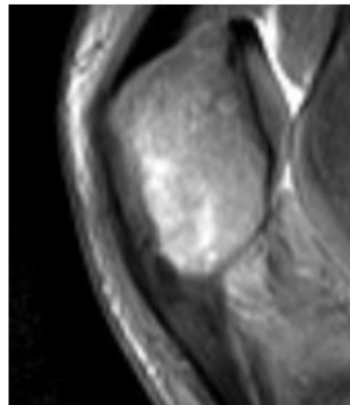
MEAN KUJALA SCORE: 93





CONCLUSIONS

Healing of the autologous cancellous tibial bone transplanted to the osseous defect at the patella harvest donor site after BTB ACLR in football players is complete by 6-12m post-op





CONCLUSIONS

The MRI signal intensity at 3m in all grafts was hypo-intense and only in 33% at 12m was iso-intense





CONCLUSIONS

The mean Kujala score constantly improves
from 43 at 3m to 93 at 12m post-op &
Kneeling Test from <1m in 45pts at 3m to
>5min in 55pts at 12m





REFERENCES

ACL injury incidence: 0,6 (injuries/1000hrs)

Walden et al, KSSTA (Jan) 2011; 19:11-19

ACL reconstructions have reported success rates of 85%-95%

Bach et al, Am J Sports Med 2005;33:284-92

94% of elite football players returned to full elite football training within 10m after ACLR & 89% participated in elite match play within 12m

Walden et al, KSSTA (Jan) 2011; 19:11-19

*ACL injuries in mens' professional football: a 15-year prospective study on time trends and return-to-play rates reveals only **65 %** of players still play at the top level **3 years** after ACL rupture*

Walden et al, Br J Sport Med (June) 2016; 50:744-50