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# Sub chondroplasty With Platelet Rich Plasma, Alternative for Chondral Injuries In The Knee

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# Disclosures:

# No conflict of interest with commercial houses or companies.



# Summary.

- The main objective of this study is to evaluate whether subchondroplasty combined with knee arthroscopy is more effective in reducing knee pain and improving function and to evaluate cartilage development in chondral lesions. All results of knee function were evaluated by functionality test, nano arthroscopy, Mappin magnetic resonance imaging, and immunohistochemical study.



# Introduction

- To evaluate the efficacy of arthroscopic cleaning associated with subchondroplasty with Platelet Rich Plasma and intra-articular infiltration, in the development of articular cartilage, joint function and pain.



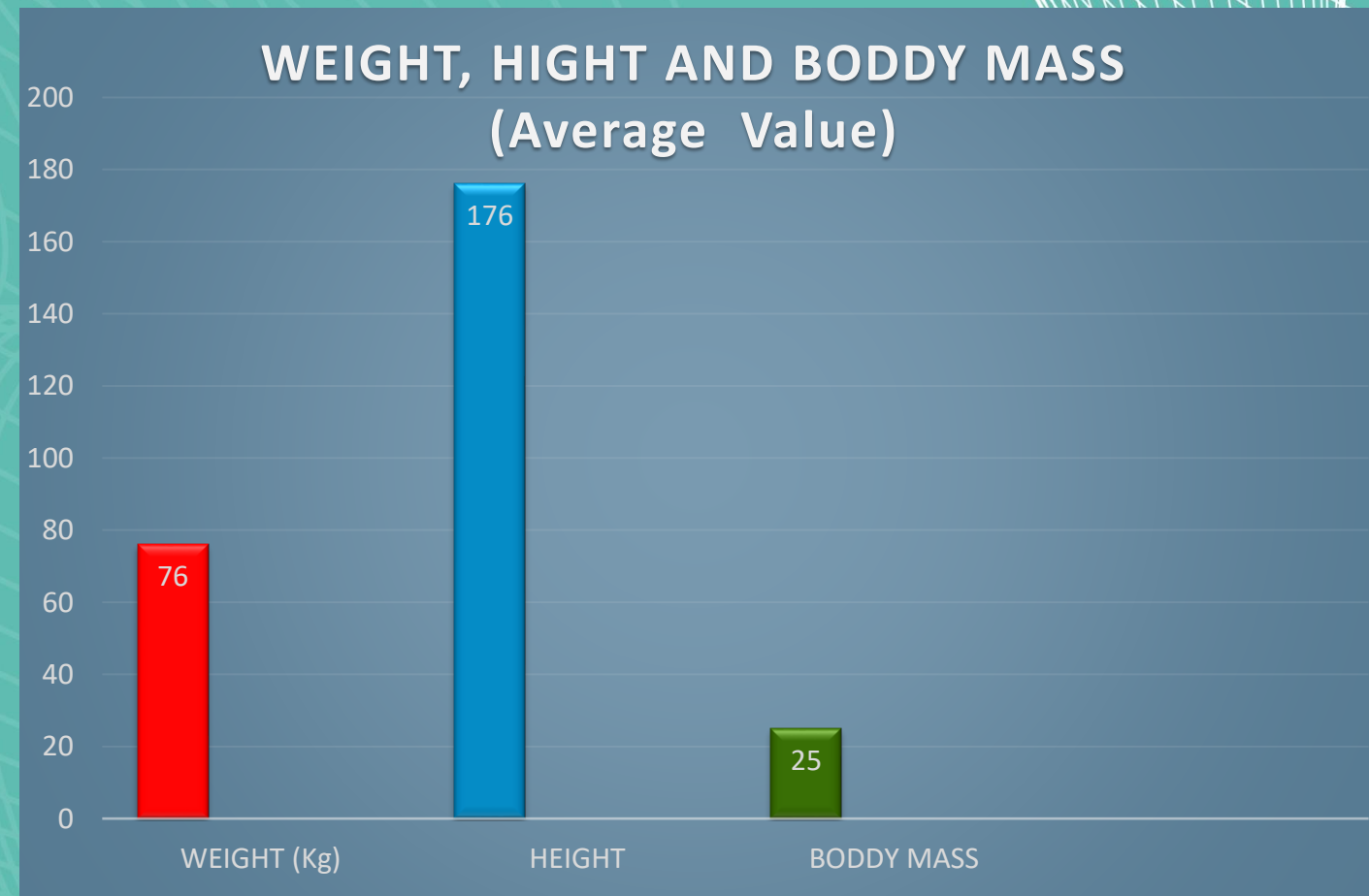
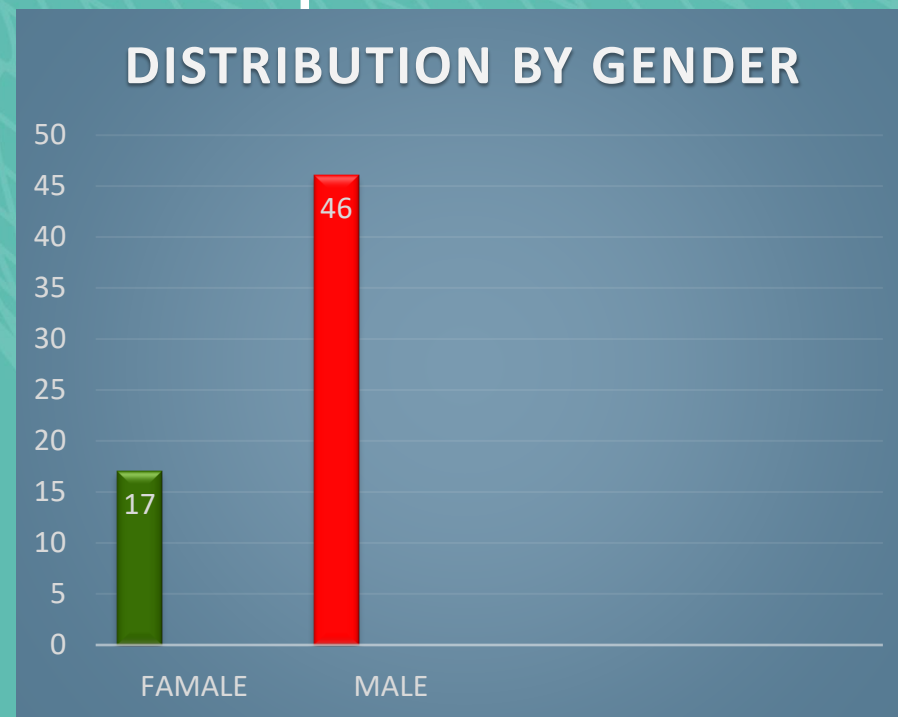
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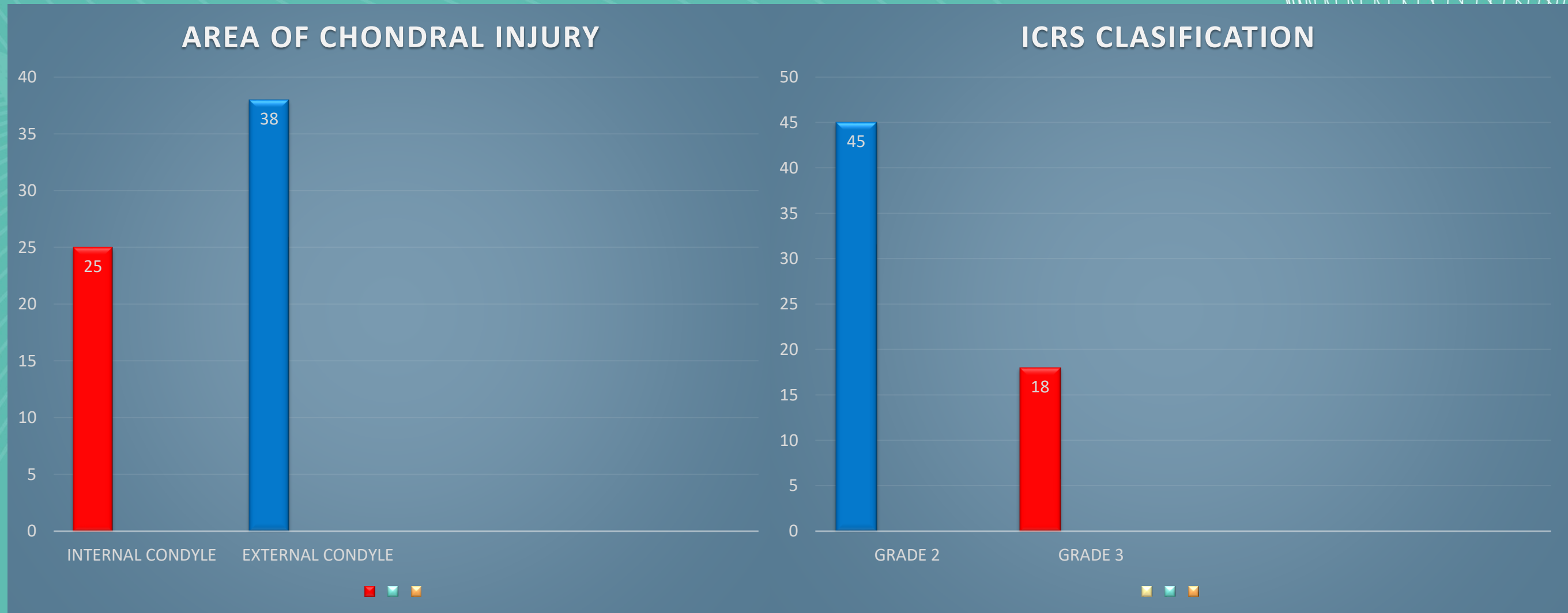
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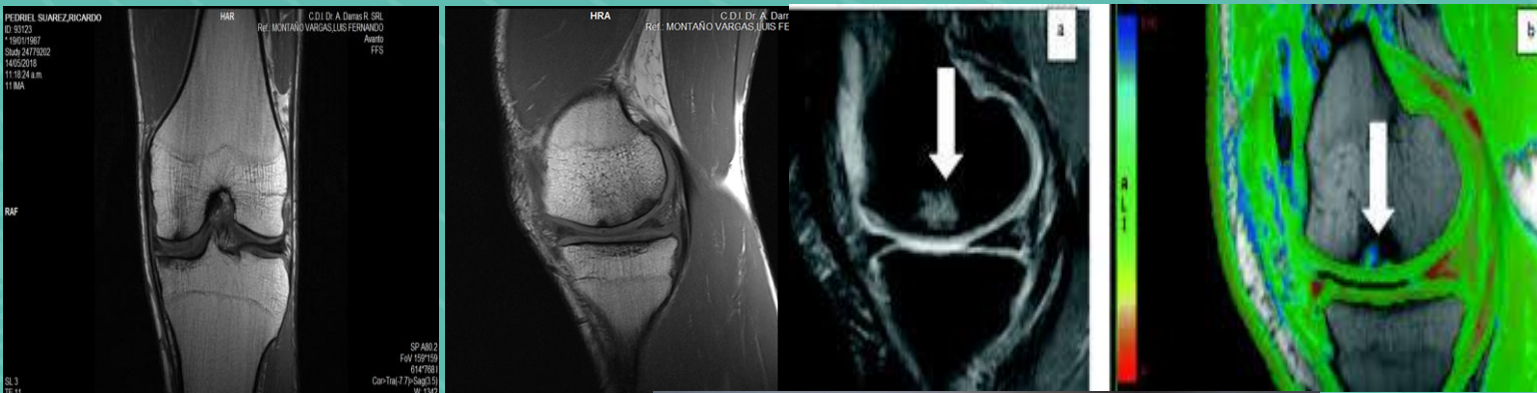
# Material and Methodology

- Longitudinal, descriptive, prospective study. (63 patients).  
Period from January 2018 to December 2022.  
Average age 34 years.  
Median follow-up of 18 months

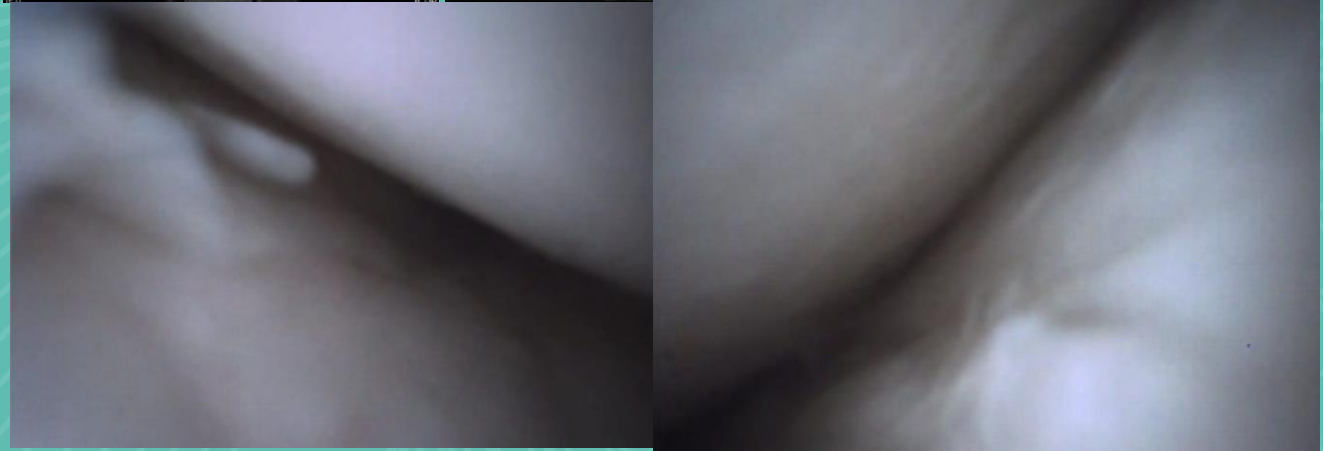


# Material and Methodology

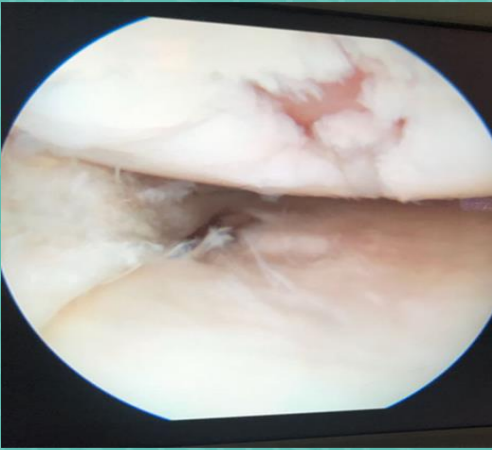




The patients were evaluated prior to the intervention by magnetic resonance imaging (Philips) 1.5 tesla, with sequences T1, T2, TSE, Mapping. (40 patients)

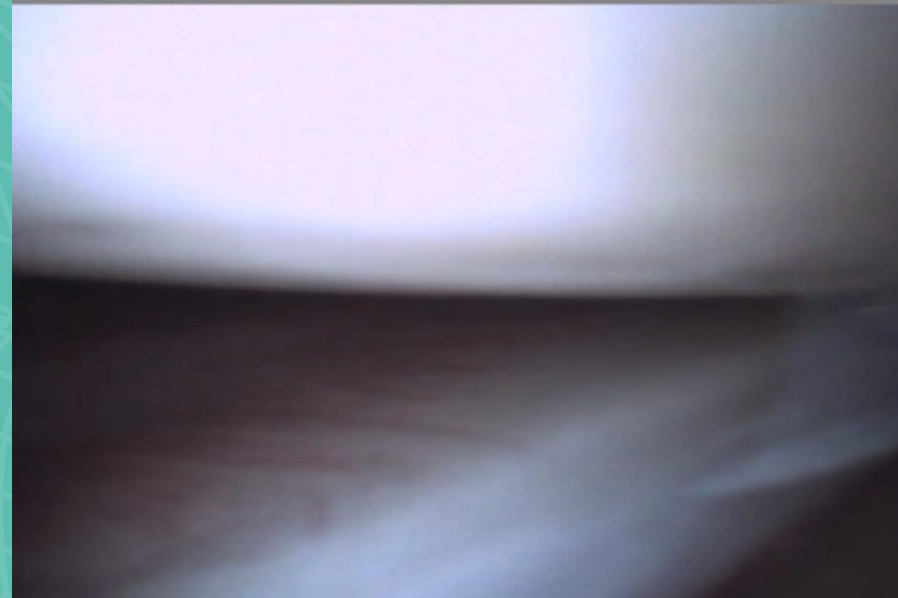
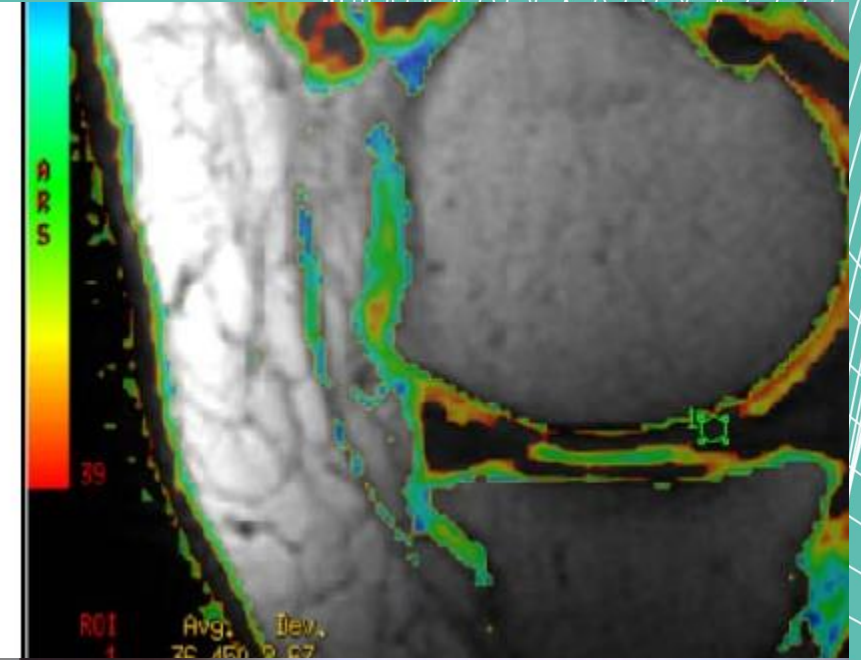
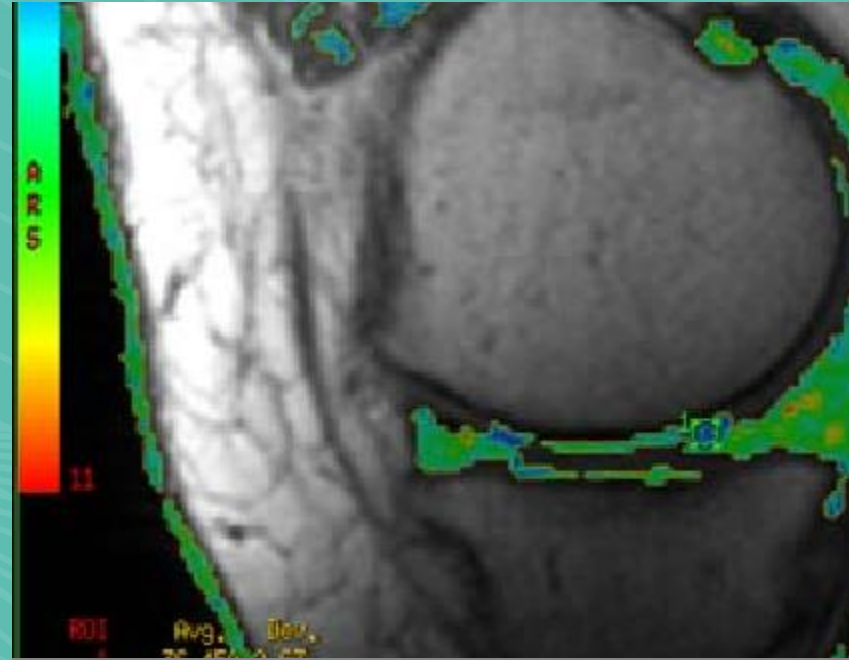


Another group of patients was evaluated by Nano Arthroscopy (Trice Medical). (23 patients).



Once the injury was diagnosed, we performed knee arthroscopy, arthroscopic cleaning of the joint, and of the area of the chondral defect. We perform subchondroplasty with Platelet Rich Plasma in the distal femur, proximal tibia (7 milliliters), then we infiltrate intra-articularly (7 milliliters).

# RESULTS



The results by means of Magnetic Resonance (Mapping) show development of articular cartilage at an average of 14 weeks post surgery.

Nano Arthroscopy confirms the development of cartilage at 14 weeks.



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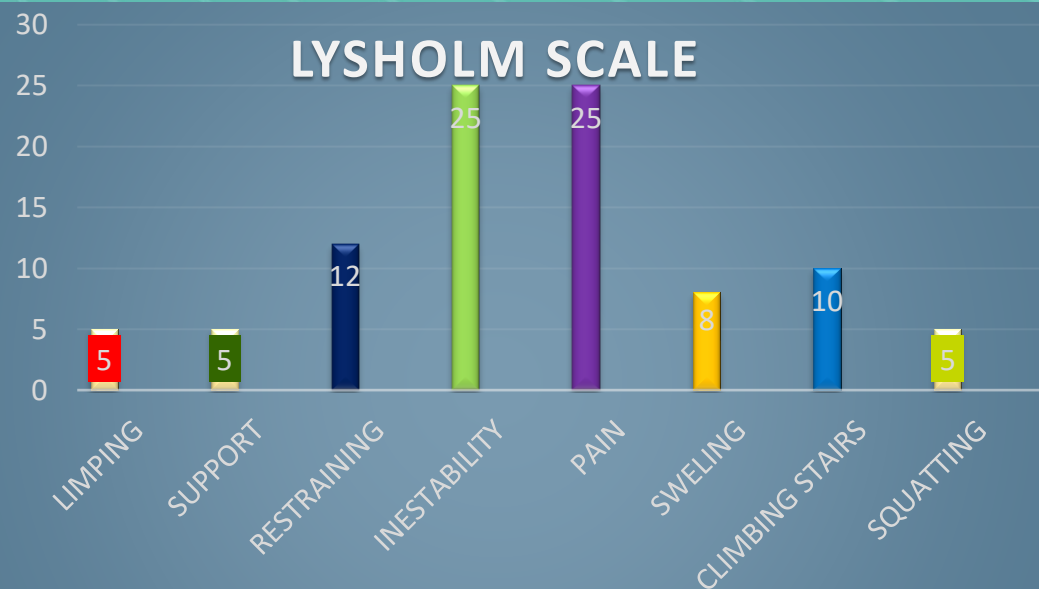
# RESULTS

The functional evaluation using the Lysholm scale prior to surgery gives a mean score of 54/100 points, after surgery 95/100 points.

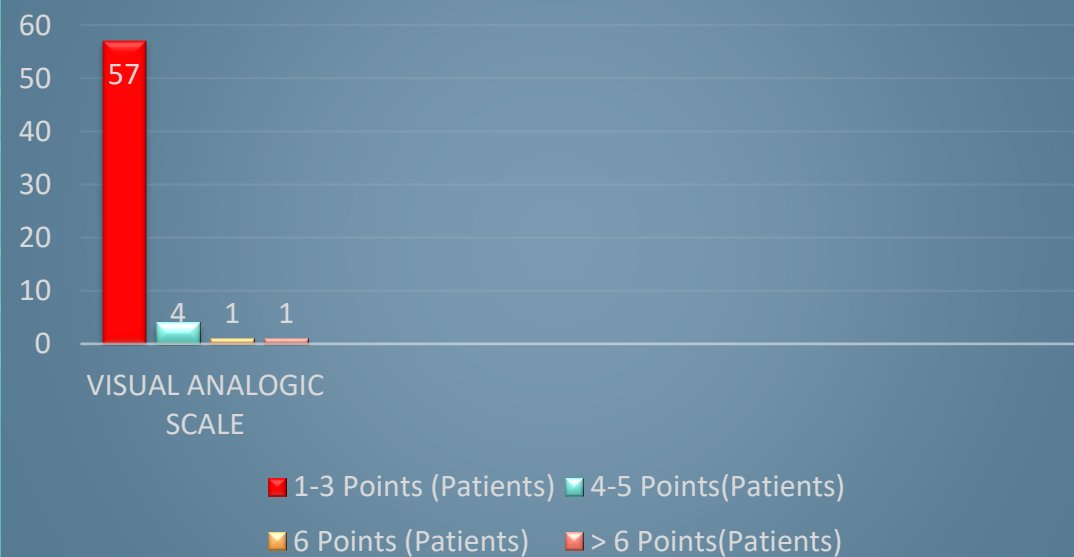
Visual Analog Scale average value of 1.39/10 points (Average Value).

Weight bearing in the affected limb was allowed 7 days after surgery, with a return to normal activities at 63, 6 days on average

## LYSHOLM SCALE



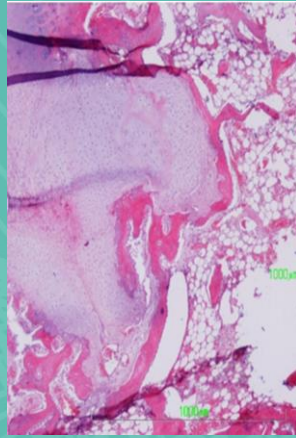
## VISUAL ANALOGIC SCALE



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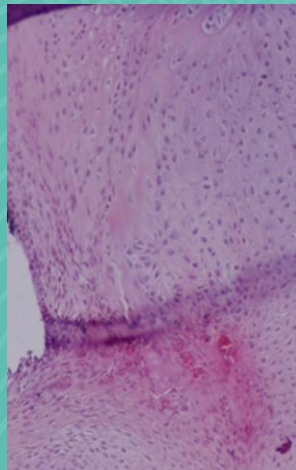


## HYSTOLOGY

### ONE MONTH POST SUBCHONDROPLASTY

Chondrocytes and Chondronas on the articular surface of the lesion.

Depth Hypercellular immature cartilage integrated into healthy cartilage



## HYSTOLOGY

### THREE MONTHS POST SUBCONDOPLASTY

Higher cell density.

Subchondral bone Adipose bone marrow well vascularized.

Basally higher cell density than in the rest of cartilage



## INMONOHYSTOCHEMESTRY

Collagen 2 (brown stained) is seen in the basal zone adjacent to the cartilage, as well as throughout the newly formed cartilage overlying the lesion.

(CA: Adjacent cartilage; P: Neoformed cartilage perichondrium; TO trabecular bone)



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# CONCLUSIONS

- Arthroscopic joint cleaning associated with subchondroplasty with Platelet Rich Plasma and intra-articular infiltration is an alternative for the treatment of chondral lesions, improving subchondral and intra-articular homeostasis, allowing cartilage regeneration in lesions smaller than 1.5 cm<sup>2</sup>, reducing pain and improving range of motion of the joint.



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