

## REHABILITATION PROTOCOL AFTER TRAUMATIC DISTAL AVULSION OF KNEECAP'S AND PATELLAR TENDON

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### Introduction

In this work we describe a case of a young football player who reported traumatic avulsion of the left knee cap's and patellar tendon. Our aim is to describe the rehabilitation protocol, focusing on the baseline characteristics of the patient.

### Patient and methods

A 15-years-old football player, playing in a youth national league, for what he was training with a three times a week schedule, that reported a traumatic avulsion during a routinary workout. The injury occurred during a training session while the patient was kicking with his right leg; he reported a left knee torsion leading to avulsion of distal left knee cap's and patellar tendon. Patient underwent surgical treatment within five days, with the re-insertion of patellar tendon and his capsule on anterior tibial tuberosity using titanium anchors. Patient was discharged within two days; he was prescribed a 30 days period of total left leg unload, using anti-brachial crutches and a 0-10° bent tutor. After this 30-days period the patient started a rehabilitation protocol in our rehabilitation center.

### Rehabilitation protocol

- Phase 1. Inflammation recovery: Two weeks of hydrokynesis therapy with 5 days a week sessions of about 90 minutes with complete leg unload.
- Phase 2. Range of motion recovery. A 5 days a week scheduled period with alternated swimming-pool session (90 minutes, in the morning) and training in the rehabilitation gym (120 minutes in the afternoon). After four weeks, training sessions were reduced to two session a week in the swimming pool and three session in the gym. The objective of joint recovery was reached without pain. Patient started aerobic work with exercise bicycle and light strengthening.
- Phase 3. Strength recovery: in this 17 weeks phase swimming pool workouts were stopped and gym workouts were incremented to five session a week of 180 minutes. Aerobic work was used to reach strength recovery of all leg muscles with particular attention in reaching the complete extension of the leg.
- Phase 4. Coordination recovery: in this 4 weeks phase were included strengthening and proprioceptive exercises (with isokinetic machine and proprioceptive tables: Lybra, Boucher and Skimmy).
- Phase 5. Sport act recovery with rehabilitation on the football field: the patient underwent a two weeks period with one FKT session and two football ground session weekly; after this, a 4 weeks period with 3 football ground session weekly of 120 minutes.



### Conclusion

Ten months after surgery patient was discharged from our rehabilitation clinic with this outcomes:

- isokinetic tests showed a 10% deficit of the peak torque of left knee extensors versus the right ones;
- threshold test showed an S2 heart-rate value of 165 bpm at 9 km/h speed and an S4 heart-rate value of 185 bpm at 11.3 km/h.

After 70 sessions in the swimming pool, 160 FKT session in the rehabilitation gym and 16 on the football field, the patients was able to re-start routinary workout with his team.

At the end of the rehabilitation the patient started the agonistic activity with his team and in one month of follow up did not reported any recurring or new injury.

## PROTOCOLLO RIABILITATIVO PER AVULSIONE DISTALE DEL TENDINE ROTULEO IN UN GIOVANE CALCIATORE



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### Introduzione

Nel caso clinico qui riportato si analizza il protocollo riabilitativo di un giovane calciatore conseguente all'avulsione del tendine rotuleo del ginocchio sinistro.

In un caso come questo, le problematiche che si presentano nel percorso riabilitativo possono essere legate a tanti fattori, riguardanti il tipo di lesione subita, ma anche le caratteristiche del paziente.

### Caso clinico

Si tratta di un giovane calciatore di 15 anni (peso 60 kg, statura 169 cm, BMI 21.0 kg/m<sup>2</sup>) che, al momento dell'infortunio, partecipava ad un campionato di livello nazionale per il quale si allenava con una frequenza di tre volte alla settimana.

L'infortunio è accaduto in allenamento mentre il ragazzo, calciando con la gamba destra, ha subito una torsione del ginocchio sinistro in appoggio, che gli ha provocato l'avulsione del tendine rotuleo distale.

Il paziente è stato trattato chirurgicamente dopo 5 giorni, tramite re-inserzione della tuberosità tibiale anteriore, tendine rotuleo e capsula con ancore in titanio e cerchiaggio tessile.

Il ragazzo è poi stato dimesso a due giorni dall'intervento con l'indicazione di osservare un periodo di 30 giorni di completo scarico per l'arto operato, attraverso l'utilizzo di bastoni antibrachiali e di un tutore articolato 0-10°.

Terminato questo periodo, il paziente ha iniziato il percorso riabilitativo presso la nostra struttura riabilitativa.