

## RECURRENT MUSCLE INJURIES: A CASE REPORT OF PERPLEXING RELATIONSHIP WITH MALOCCLUSION

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### Introduction

Muscle injuries are very common in sport traumatology and sport physicians and therapists are often disappointed by recurrences. The immediate treatments, that minimize haemorrhage and maintain muscle flexibility, are well known but in some cases they are not sufficient for preventing recurrences. In fact, the recurrent injuries may be a consequence of a metabolic or biomechanical stress that could be very difficult to assess. In particular there are some anecdotal reports of relationship between malocclusion and muscular non contact injuries in soccer players. Thus, we present a perplexing case report of a soccer player that after three recurrent muscular injuries was treated also with orthodontic therapy with good outcome.

### Case History

A 24 years-old professional soccer player reported his first non contact injury during a soccer match. The patient came to us 12 days after the injury. Clinically he presented no palpation pain, pain on stretching and straight leg raising, reduced flexibility and knee flexion ROM at 70 % if compared with controlateral. An ultrasound examination evidenced a regular fibrous evolution of a first grade strain at central third of the right rectus femoris. The patient was accurately treated with physical therapy and exercises for strength and flexibility. 27 days after the injury the patient presented no pain, neither in dynamic test, complete flexibility and a light knee extensors strength deficit of the injured side (-13% vs controlateral) assessed isokinetically at 180°/s, and began competitive functional rehabilitation on the field. Nevertheless complete clinical and instrumental recovery, a recurrence occurred after two weeks of competitive activity on the same muscle, 41 days after the first injury.

An ultrasound examination showed a rectus femoris first grade strain with an interstitial haemorrhage. Clinically was evident pain and local oedema on palpation at central third of the rectus femoris, pain on stretching the muscle, that limited flexibility at half range in knee flexion and pain on toes walking.

The athlete was treated again with modalities and assisted stretching and massage for the first two weeks and strengthening exercise after then. A second ultrasound examination 23 days after the injury showed incomplete fibrous evolution without any complication.

The patient completed the rehabilitation program in the gym and the functional phase on the field. He returned to his soccer team 46 days after the recurrence. He played three full competitive matches until six weeks later (five months after the first injury), when a new non contact injury occurred. An ultrasound examination confirmed a rectus femoris second grade strain localized at the same site of the previous injuries. After this third injury, we re-analyze posture and gait, that were normal and also we considered the possibility of a relationship with dental occlusion. We manually assess the upper limbs strength that resulted reduced during strong dental occlusion. The patient was send to an orthodontic specialist that diagnosed a malocclusion and extracted two toots. A rehabilitation program then began with protocols similar to that utilized before, including postural back and limb training, core stability exercises, local massage, modalities and progressive rectus femoris stretching and strengthening. Three months after the last recurrence the patient fully regained competitive activity at the pre-injury level and no more recurrence occurred one year later.

### Conclusions

This case report indicates that in athletes with recurrent muscle injuries it could be useful to investigate also malocclusion or other dental problems. We hypothesize that malocclusion could have a relationship with masticatory and postural adaptations that may induce a muscular overload during heavy sport activities. Further studies are necessary to provide a scientific basis to this perplexing relationship.

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