

# COLLAGEN TYPE I INJECTION TREATMENT IN MEDIAL GASTROCNEMIUS MUSCLE INJURY

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## INTRODUCTION:

Muscle injuries are among the most frequent injuries occurring in the sports community, and those to the gastrocnemius muscle, such as the one in our clinical case, are some of the most common injuries.

In this case study, an in-depth examination of injuries was carried out, including description, causes and physiology of healing, classification, physical and instrumental therapies, and rationale for the use of injectable type I collagen to speed up the repair and functional healing of the muscle and the return to sporting activity. Collagen type I is the most abundant protein in the body and a constituent of soft tissues: tendons, ligaments, muscles.

## OBJECTIVE:

To share, by using a clinical case, the epidemiology, aetiology, diagnostic criteria, and therapeutic interventions for the gastrocnemius muscle injury.

## MATERIALS AND METHODS:

The patient enrolled was a 24-year-old male professional cyclist who came to our consultation for stabbing pain in the posterior left thigh arose during daily training. He was suspected of GRADE I°/II° GASTROCNEMIC LESION due to strain and showed local oedema, muscle tension, stiffness, pain on locoregional palpation and during mobilisation and contraction. After ultrasound confirmation of a grade I° muscular lesion in the 3° medial gastrocnemius, it was decided to proceed with functional rest, 8 sessions of Human TECAR therapy on alternate days and local collagen injections.

After 7 days, the patient underwent 3 echo-guided injections of collagen type I MD-Muscle (1 vial of 2ml) at weekly intervals. The injections were administered intramuscularly at the level of the lesion in the medial gastrocnemius, with a 22G x 3.50" – 0.7mm x 90mm needle and by ultrasound approach. The pain assessment scale was the VAS (Visual Analogue Scale) of initial and final pain at one month after the end of the injection cycle. Follow-up pain assessment at 3 and 6 months was also useful.

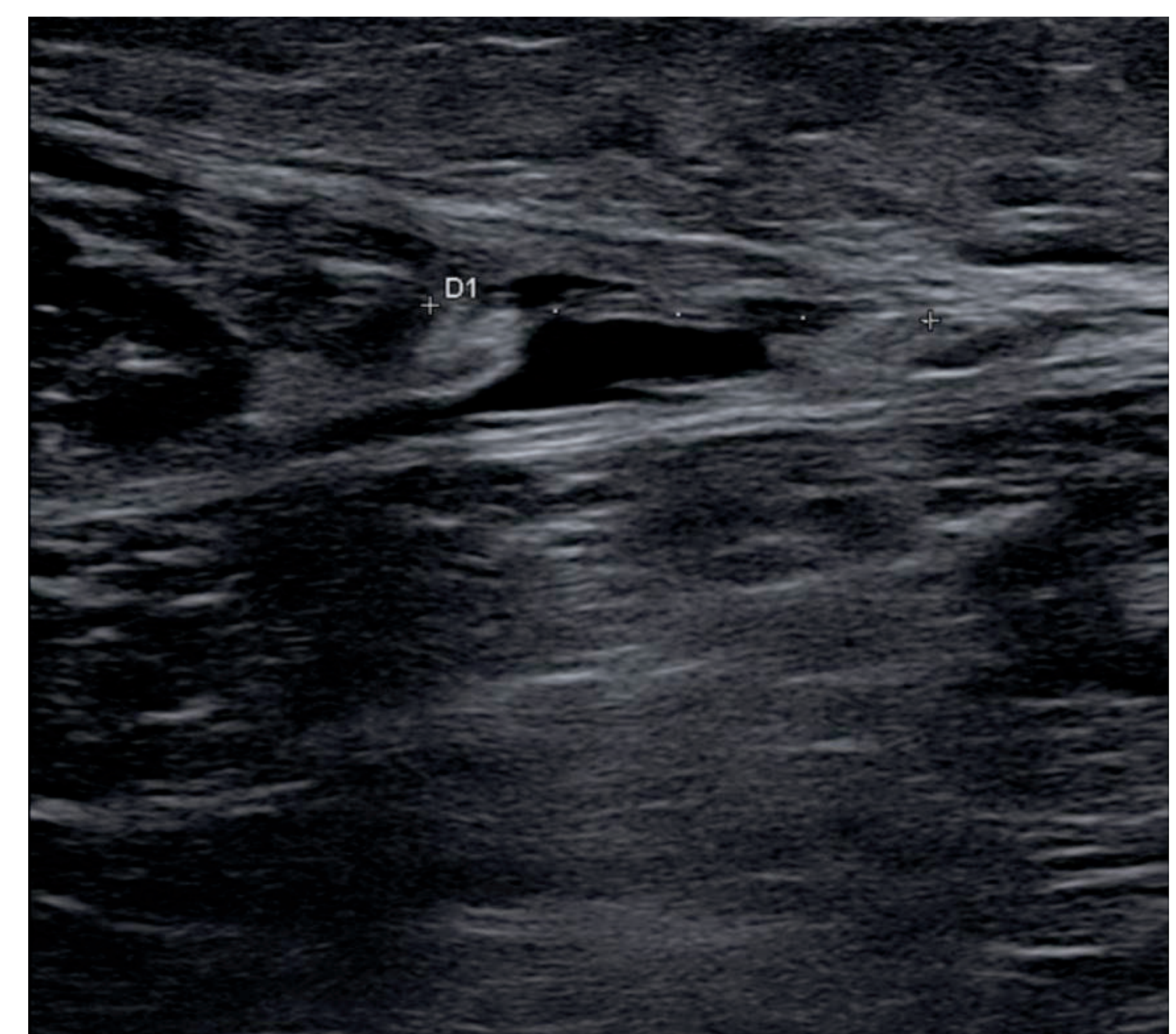
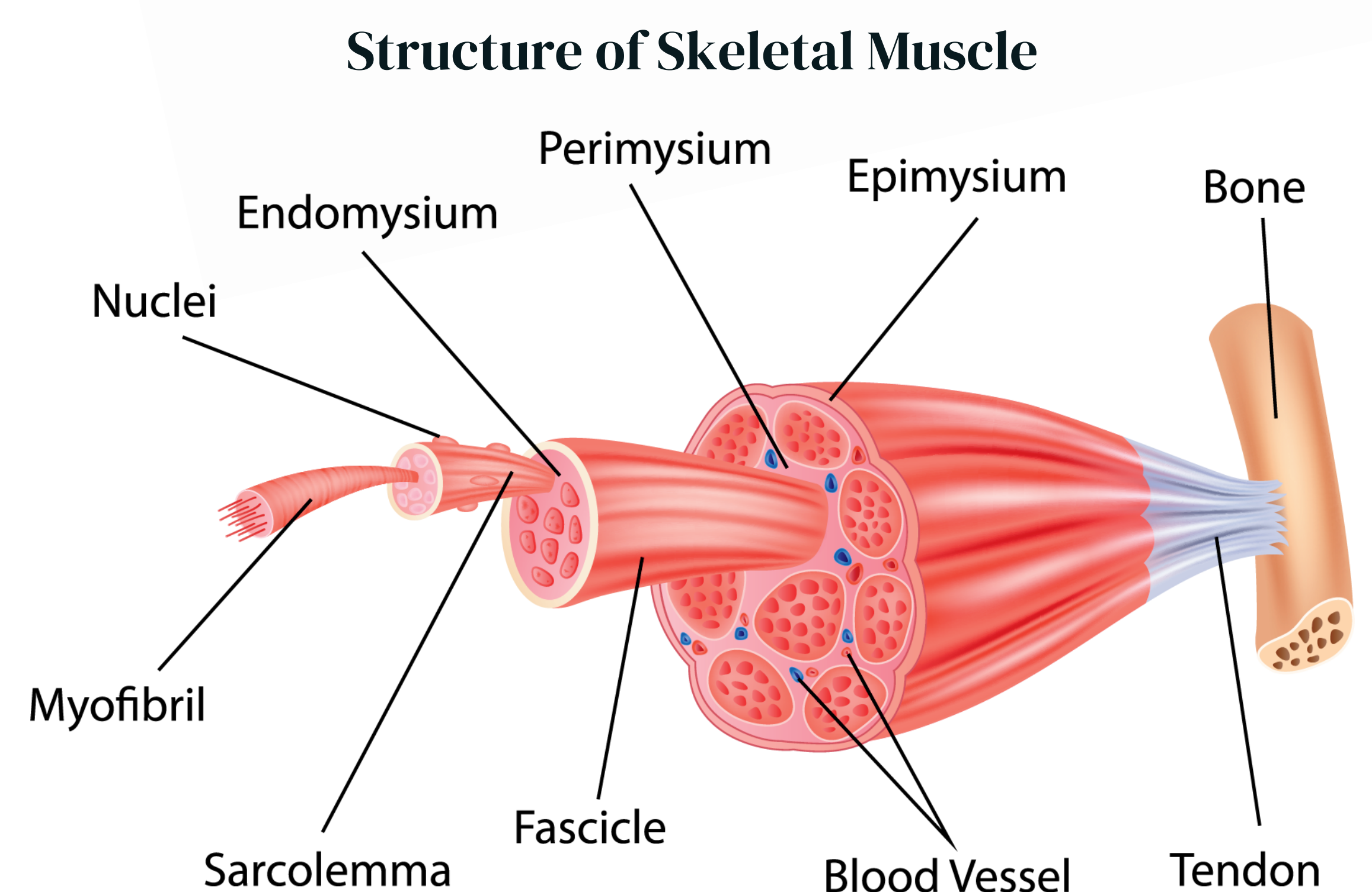
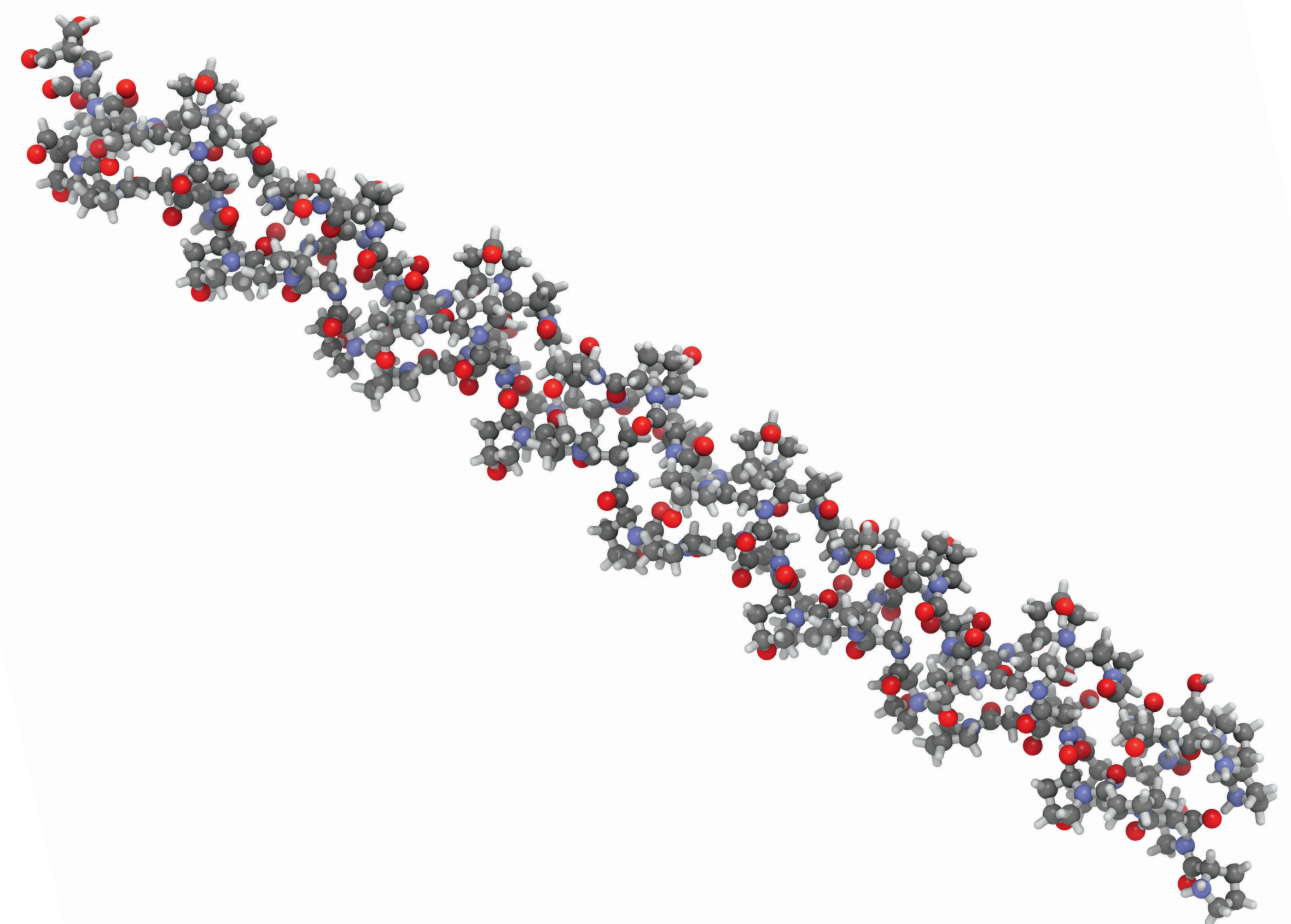
In terms of pain reduction, the outcome values were assessed with VAS scale from initial point 8 (T0), to intermediate point 4 (T1), to final point 0 (T2). Follow up were done at 3 months (T3) and 6 months (T4).

## RESULTS:

The patient reported progressive improvement in pain and function of the affected limb after the treatment with physical therapy and rest combined with Collagen type I injections. Three weeks after the injury occurred ultrasound scans showed no trace of scarring, which could have caused discomfort in the performance and resumption of professional sporting activity. The patient therefore resumed his athletic activity. The perfect *restitutio ad integrum* accelerated recovery time, avoiding excessive retraining of the muscle during its daily physiological movement. Porcine type I collagen allowed to contain muscular scarring, which usually prevents physiological contraction and release movement.

## CONCLUSIONS:

The injection treatment with GUNA Medical Device made with porcine type I collagen is a useful, safe, and easy-to-use reparative treatment. Collagen injections can be used in combination with physical therapies. In addition, the synergic use with TECAR therapy methodology can accelerate the reabsorption of the perilesional oedema, facilitating targeted deposition of collagen. The MD-MUSCLE collagen significantly reduced pain, had antioxidant and anti-inflammatory activity and promoted homeostasis, remodelling and tissue repair, by acting as an active scaffold at the level of the extracellular membrane. Further studies will be necessary to prove effectiveness on a wider number of cases.



Ultrasound imaging of Medial Gastrocnemius grade I/II with local oedema and thinning of muscle fibers.

## REFERENCES:

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