Calcific tendonitis – Iontophorisis and Sonophoresis

It all started with a literature search, looking for ways to better deal with calcifications within muscles and tendons. I came across an article, the before and after x-rays were stark. Eureka! After a lot more research, I came to the conclusion that iontophoresis was a credible approach – but I needed to gain pragmatic insight. An email to an eminent researcher in the field later, tickets booked, bag packed and off I went to Spain!

Dr Marcos E Fernandez-Cuadros MD MSc PhD, a consultant in rehabilitative medicine; is a gentleman and scholar with a deep passion and insight into a discipline of medicine we do not as such have in England. The closest we come is sports medicine – but that does little justice to the ‘tools’ the rehabilitative specialists in Spain possess and the remit of their practice. It really has to be seen to be believed.

I was warmly welcomed in two hospitals in Spain over two days. In this time I was permitted to shadow treatments, ask questions and formally taught the technique. I was shown research findings for patients with calcific tendons and most generously Dr Marcos took time out of his busy clinic schedule to give me a presentation on calcifications. The presentation I have uploaded to my website www.townosteo.com/research.

The below is a summary of the work by Dr Marcos E. Fernandez-Cuadros taken with his permission from his book ‘Calcifying tendonitis: effect of Physical Therapy and Iontophoresis’.

What is calcific tendonitis?
Calcifying tendonitis (CT) is the intratendinous deposit of calcium apatite within previously healthy tendons and tendon sheaths[1]. Tendons that are particularly vulnerable are shoulder, ankle, knee, elbow, hip, and wrist[2]. Within the shoulder it occurs between 2.7 and 20% in asymptomatic
patients, with an average age between 30 and 50 years, effecting women more than men [3,4] and in 40-54% of patients it is the cause of painful shoulder symptoms [5,6,7].
The pathogenesis is unknown. One theory is that it is precipitated by tendon fibrosis and necrosis, the degeneration of which favouring crystal deposition [8,9]. Other authors believe it is a cell-mediated process. [4,9,10]

Three stages with clinical, histological and radiographic correlation are described.
1) Pre-calcification. Tenocyte metaplasia and chondrocyte transformation.
2) Calcification a) formative (reservoir of vesicles in matrix), b) Resorptive phase (spontaneous resorption during phagocytosis by macrophages)

The clinical picture is highly variable. Patients can present with chronic pain, acute pain crises (mainly associated with the resorptive phase) and asymptomatic patients. [12] CT is more common in asymptomatic patients. [13]

**Conclusion**
Treatment of CT is initially conservative and depends on its evolution. [14] Options include therapeutic abstention in asymptomatic patients; NSAIDs, physiotherapy [15], electrotherapies (micro waves, short waves. TENS, ultrasound, interferential, pulsed electromagnetic therapy, sonophoresis, iontophoresis), shock-wave therapy [16] and finally surgical approaches [17,18]. Shockwave and arthroscopy are advanced therapeutic options [19] that are as effective as iontophoresis, however, they are painful, expensive and not exempt from risks of complications. [20] Shock wave is further limited, current guidelines prohibit peri-spinal use, although research is innovatively showing otherwise. [21]
Iontophoresis with 5% Acetic Acid and ultrasound (sonophoresis) is a safe, simple and inexpensive technique capable of reducing pain and calcification within the shoulder, elbow, wrist, hip, knee and ankle. [1]

For further details on what Iontophoresis & Sonophoresis is, the evidence base and methodology, please do consider ordering the book
**Name:** Calcifying Tendonitis: effect of Physical Therapy and Iontophoresis
**Author:** Marcos E. Fernández-Cuadros
**ISBN:** 978-3-330-03370-2

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**References**


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