



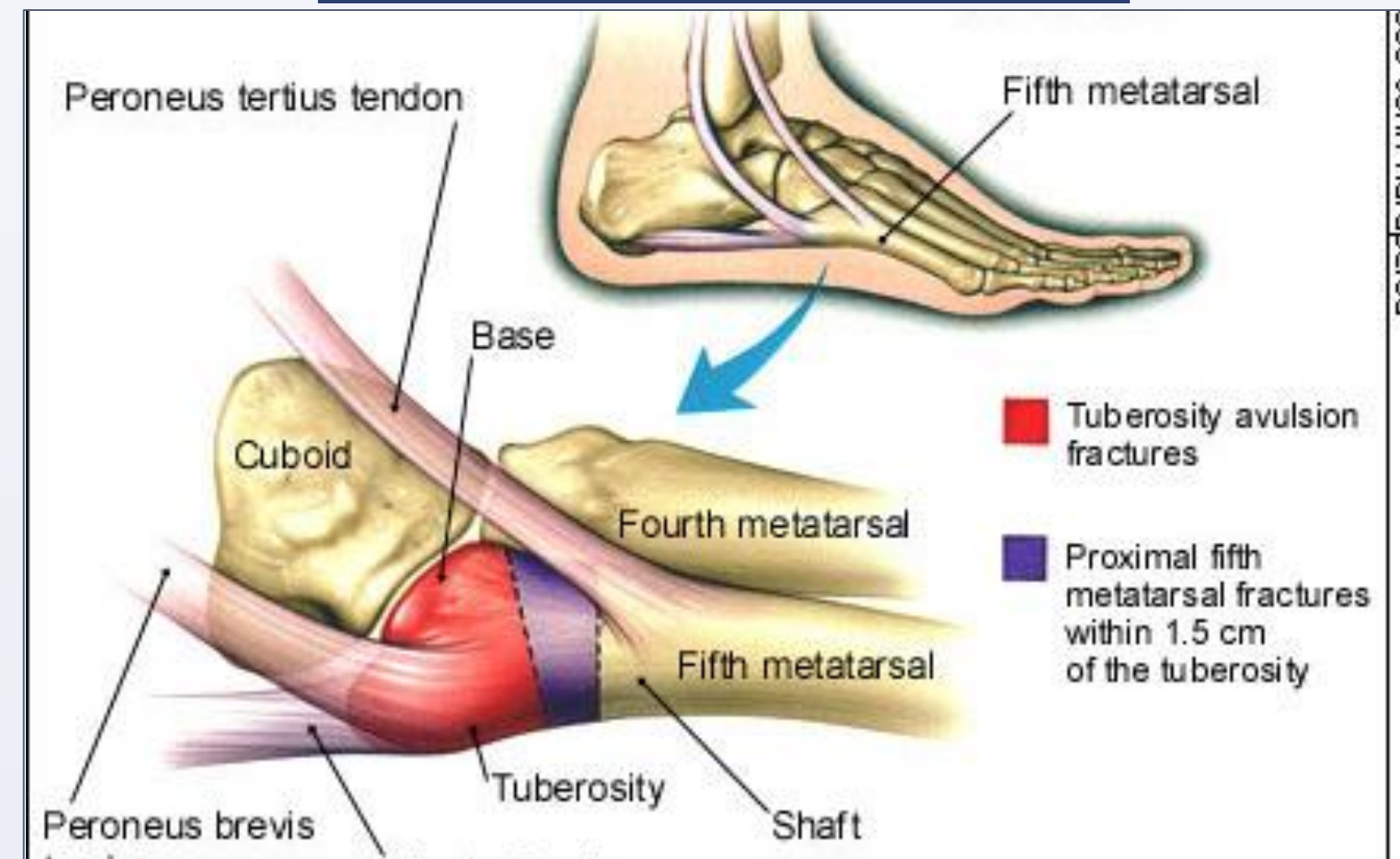
An Integrated Approach - The Way Forward?

Robert Creane BSc, MBA

The Institute of Physical Therapy



CASE STUDY OVERVIEW



This case study examines an integrated approach to treatment and rehabilitation for the injured athlete. The integrated approach combined **Physical Therapy** modalities, **Integrated Systemic Dry Needling (ISDN)** and a **Sports Rehabilitation** programme. The injured athlete sustained an avulsion fracture at the base of the 5th metatarsal during a football match. The programme commenced immediately after the injury was diagnosed by MRI and it continued until the athlete returned to play, 14 weeks later.



OBJECTIVES

The objectives of the programme were to :-

1. Facilitate tissue healing at all stages.
2. To limit pain and discomfort.
3. To enable the athlete to return to play in an optimal timeframe.
4. To provide the athlete with a clear pathway back to his chosen sport.
5. To rehabilitate the injured limb in order to minimise the risk of re-injury.
6. To explore the integration of a range of modalities (as opposed to finding the absolute best mix of modalities).
7. To create a useful template for an integrated evidence based approach.
8. To identify subjects for further investigation.



THE INTEGRATED APPROACH

Physical Therapy Modalities were selected according to presenting symptoms and the stages of tissues healing. The initial emphasis was to facilitate tissue healing whilst managing the inflammatory process.

Active assisted ROM (AAROM) exercises were performed to assist early motion, Banders and Sanders (2001a).

Massage therapy has been shown to decrease the proliferation of inflammatory cytokines and to promote mitochondrial cellular activity, thus facilitating tissue healing.

Myofascial release procedures such as techniques developed and described by individuals such as Travell and Simons (1992), Greenman (2003).

Cross friction techniques across lesioned ligaments and tendons create a numbing effect and localised hyperaemia to maintain structural mobility, developed by John Cyriax and described by Chamberlain (1982).

Foot and ankle mobilisations were applied during each treatment. These have been shown to restore range of movement, Gale (1999).

Muscle Energy Techniques (METs) are effective for joint restrictions, muscular contractions, spasms and tightened/shortened muscles, McActee (1993).



A **Sports Rehabilitation** programme was created for the injured athlete based on the American College of Sports Medicine (ACSM) position stand on resistance training, Kraemer et al (2002).

According to Frontera (2003), during the proliferative and matrix production phase, the principles of treatment and rehabilitation are early motion, which aids cellular orientation and the prevention of adhesions, protection from mechanical overload, and strengthening exercises that allow a functional gait.

The rehabilitation programme consisted of a criteria based multi-stage programme, Bandy and Sanders (2001), Frontera (2003):

There were three phases as follows:-

Phase 1: The Early Phase

Phase 2: The Intermediate Phase

Phase 3: The Late Phase including the Return to Function Phase



THE INTEGRATED APPROACH



Integrated System Dry Needling (ISDN) is described by Dr Yun Tao Ma (2005), (2011) as a synthesis of the theories and techniques of Travell and Simons (1992) and C. Chann Gunn (1996) with other needling techniques and Classical Acupuncture.

Dry needling initiates an immune response from the biological systems including the nervous system, cardio-vascular, immune and endocrine systems to replace the damaged tissue with the same type of tissue within a few days. In addition to the local healing effect, the lesion created by the needle induces systemic effects to restore homeostasis through a number of reflex processes at different levels of the central nervous system.

Dr Ma reminds us that the efficacy of ISDN therapy depends on two factors:-

1. The level of self healing potential of the body.
2. The ability of the particular symptoms or diseases to heal.

ISDN treatment was administered twice weekly from the acute injury phase through until the athlete returned to play three months later. The focus for each of the two weekly ISDN treatments was as follows:-

Weekly Session 1: Consisted of treatment of *Symptomatic Acupoints (SA's)* in order to facilitate tissue healing and pain management plus *Para-vertebral Acupoints (PA's)* which were selected to facilitate peripheral desensitisation of SA's and spinal desensitisation, to relax the back muscles to remove stress from the roots of the spinal nerves and to balance the activities of the Autonomic Nervous System

Weekly Session 2: Consisted of treatment of *Homeostatic Acupoints (HA's)*. Homeostatic Acupoints were discovered by Dr H.C.Dung (2004). This advanced our understanding of the connection between homeostatic trigger points and the principle of central innervations of trigger points.

Evidence based research reveals that an injury produces both local symptoms and systemic dysfunction. It follows logically then that restoring homeostasis should form an important element of the treatment approach.



CONCLUSIONS

The integrated treatment and rehabilitation programme used for this patient was successful in returning the athlete to his pre-injury status in 14 weeks.

There were no major complications with the injury recovery process e.g. there no delayed bone union (as confirmed by MRI at eight weeks post injury).

The rehabilitation programme was based on the American College of Sports Medicine (ACSM) position stand on resistance training, Kraemer et al (2002). While the ACSM position stand on resistance training is considered by many to be the "Holy Grail" on resistance training.

Not everyone agrees with this stand. (Winett R, 2004) suggested that the ACSM position stand did not follow many of the recognised guidelines for meta-analysis and that there was very little support for any of the purported claims or conclusions.

The athlete was very satisfied with the mix of modalities utilised and he could see a clear rationale for each plus goals and objectives as the programme progressed.

It is suggested that an integrated approach to treatment and rehabilitation is the way forward for this type of injury. Further research is warranted to explore the most efficacious mix of modalities for this and other injuries.

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CONTACT DETAILS

Robert Creane, The Deerpark Clinic, Deerpark Business Centre, Oranmore, County Galway

Tel: 087 9886303

Email: robcreane@gmail.com

www.deerparkclinic.ie