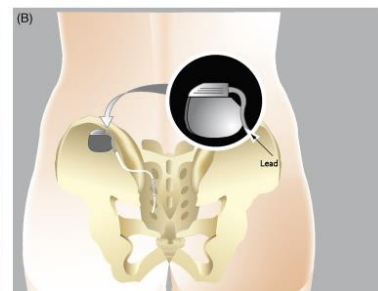
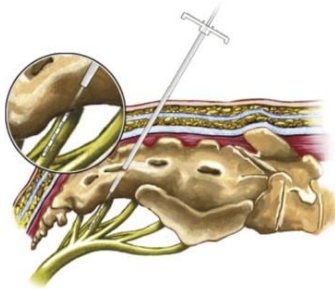


## February Research Topic –

### The Role of Tibial Nerve Electrical Stimulation for Faecal Incontinence

#### Background 1 – Implanted Sacral Stimulation

As we all know, there is now a wealth of research that has been completed on implanted sacral stimulation for the management of severe urinary and faecal incontinence. The research is fairly consistent..... Permanently implanted chronic sacral nerve stimulation can somehow provide amazing improvements in these conditions when all other treatments have failed. Obviously though, this treatment is a very invasive procedure that would usually be considered a last resort.



#### Background 2 – Percutaneous Tibial Nerve Stimulation (PTNS)

In the last 5 years or so though, there has been an explosion of research in to the use of Tibial Nerve Stimulation via Percutaneous Electrodes (ie implanted needle) for the treatment of Urge Urinary Incontinence. The aim is to send electrical stimulation signals via the posterior tibial nerve up to the same sacral nerve roots /CNS area that implanted sacral stimulation treatment is focused. Treatment consisting of 30min, once per week has been found to be very effective for urgency and urge incontinence, and more recently, improvements in faecal incontinence have also been shown.



## Background 3 – Physiotherapy use of electrical stimulation

Obviously, physiotherapists have used a combination of suprapubic, vaginal or sacral stimulation for the management of various pelvic floor related disorders for a long time. Generally speaking however, we tend to use some form of surface electrode. The nice thing is that the Posterior Tibial nerve comes very close to the surface just behind and above the medial malleolus, making it an easy nerve to stimulate Transcutaneously.

Many of you have heard me talk at the OAB course about the exciting early research showing that Tibial Nerve Stimulation might be effective if performed Transcutaneously (TTNS – Transcutaneous Tibial Nerve Stimulation) rather than percutaneously (PTNS) for urge urinary incontinence. ***But what about for Faecal Incontinence???***

## Research on Transcutaneous Tibial Nerve Stimulation for Faecal Incontinence

**2006**

### ***Preliminary Results of Peripheral Transcutaneous Neuromodulation in the Treatment of Idiopathic Fecal Incontinence***

Queralto M, Portier G, Cabarrot P, Bonnaud G, Chotard J, Nadrigny M and Lazareth F  
International Journal of Colorectal Disease, Vol 21, No 7, pp670-672

#### Introduction

This was one of the first studies looking at the possibility of using Transcutaneous stimulation of the Tibial nerve to treat faecal incontinence. It therefore was purely a treatment based study of 10 women with no control group.

#### Subjects

All women in this particular study were assessed as having “idiopathic” faecal incontinence. The authors explain that their definition of idiopathic FI was the symptom of faecal incontinence despite no observable sphincter defect and no anatomical rectal prolapse. In addition, it was identified that all women included in the study had previously failed both standard medical treatment options and PFMT with biofeedback. In addition, one woman in the group had previously attempted sacral stimulation with no improvement in symptoms.

#### Treatment:

All women received Posterior Tibial Nerve electrical stimulation via self-adhesive electrodes (no needle electrode was used).

Parameters:                    200us, 10Hz  
   20min Daily for 4 weeks

The negative electrode pad was placed immediately behind the medial malleolus on one leg only, with the positive electrode pad placed 10cm superior to the negative. Confirmation of correct placement of electrodes occurred by increasing stimulation and finding rhythmic flexion of toes in time with stimulation. Once correct placement was

confirmed, the intensity level for the 20min treatment duration was determined by the highest mA that could occur without creating a motor contraction effect. The intensity chosen therefore ranged from 10-35mA across the 10women.

## Results:

Whilst 2/10 women showed minimal change, 8/10 women showed an average 60% improvement in their faecal incontinence score after the 4/52 of treatment. In addition, this improvement persisted for the 12/52 follow up after treatment.

The authors concluded that Posterior Tibial Nerve Stimulation via self-adhesive TENS electrodes appears to be a safe, effective alternative to permanent sacral neuromodulation for idiopathic anal incontinence.

## 2009

### ***Transcutaneous Posterior Tibial Nerve Stimulation for Faecal Incontinence in Inflammatory Bowel Disease patients: A therapeutic option?***

Vitton V, Damon H, Roman S, Nancey S, Flourie B and Mion F  
Inflammatory Bowel Disease, Vol 15, Issue 3, pp. 402-405.

## Introduction

This study once again is not a RCT. The procedure was performed exactly the same as the Queralto et al study above in that Treatment consisted of 20min daily of TTNS at 10Hz, 200us and 10-30mA. Electrodes were placed just behind the medial malleolus and 10cm superior. However, treatment for this group continued for 3months rather than 4/52.

## Subjects

The main difference with the Queralto study was that this was a group of 12 people (9 females and 3 males) with a specific diagnosis of faecal incontinence associated with Inflammatory Bowel Disease. Of note is that the authors opening statement in the abstract makes reference to the fact that "Faecal incontinence associated with inflammatory bowel disease (IBD) may be particularly difficult to treat".

## Results:

At 3months, 5/12 patients (41.6%) reported a significant symptomatic and quality of life improvement.

In all 5 cases that showed improvement, the degree of improvement was greater than 50% (60% improvement in 1 patient, 70% in 2 patients, 80% in 2 patients).

3 patients also showed an improvement in the time they were able to defer defecation, and one patient described disappearance of nocturnal soiling.

## 2010

### ***Transcutaneous Electrical Posterior Tibial Nerve Stimulation for Faecal Incontinence***

Vitton V, Damon H, Roman S, Francois M  
International Journal of Colorectal Disease, Vol 25, No 8, pp1017 - 1020

## Introduction

This study once again is not a RCT. It is by the same lead authors as the study above and with exactly the same methodology of 20min daily TTNS for 3/12.

## Results:

13/24 patients (54%) showed a significant improvement in faecal incontinence scores. 11 of 13 patients continued to show this improvement at 15months.

## Taryn's comments??

Unfortunately, none of these studies are randomized controlled trials and therefore it is hard to dispute the fact that a large effect could be placebo. With that said, there is always the long running debate of whether a placebo effect is fine as long as the patients feel they are getting better??

The mechanism behind this improvement is uncertain (in the same way that it is uncertain why implanted sacral stimulation works). However, some authors suggest that the electrical impulses travelling via the tibial nerve to the sacral spine may be facilitating a somatic -autonomic reflex that then facilitates activation of the internal anal sphincter.

Either way, as we all know, faecal incontinence is a particularly difficult area and one which many patients are too embarrassed to seek treatment about. This is an exciting area of research that may provide a very non-invasive, non-confronting option for the many patients who suffer from this particularly distressing condition. Hey... even our musculoskeletal colleagues who can't bear the thought of ever going near a vagina or anus can perform this one! ☺

## **An Interesting Link with One of my Previous Pelvic Floor Pain Patients:**

Just as an interesting note..... Recently I had a patient of mine return for treatment after being relatively asymptomatic for a number of months. This lady was in her mid 20's and had originally come to me with hypertonic pelvic floor muscles creating generalized pelvic pain, rectal pain and dyspareunia. We had originally treated her with manual therapy of both levators and superficial pelvic floor including soft tissue release and trigger point work. At the time this improved things substantially. About 3/12 after discharge however she returned with an exacerbation of symptoms.

Initially on questioning she stated she couldn't think of anything that had happened that could have exacerbated her symptoms. Interestingly, on her next appointment she was telling me about her electrical foot stimulation device she recently bought for "circulation". She explained that when she used it she could feel her Pelvic Floor Muscles contract.

On talking to her further about this device I realized that this was a product that is marketed simply in department stores. It is a round plate that you place on the floor that provides a TENS like current to the bottom of your feet and claims to improve Lower Limb circulation. Every time she used it, I assume that it was activating her tibial nerve on the underside of her feet and causing a Pelvic Floor contraction via it's sacral nerve root stimulatory effect.

Nonetheless, I told her to cease the machine and sure enough.... Her PF hypertonicity exacerbation resolved!!