Manual therapy for coccyx pain

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MANUAL THERAPY FOR COCCYX PAIN

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INTRODUCTION

Manual intervention

Manual therapy for coccydynia has been minimally researched and in the very few studies available, the use of widely differing techniques limits the comparison of results. Of four studies two re-searchers performed coccyx manipulation in the sagittal plane [1] [2] while one manipulated the coccyx in the coronal plane [3]. Variation in frequency, duration and number of manual treatments and a lack of comparability in the intensity and direction of manipulation indicates the need for fur-ther research to find an optimal treatment approach. Two studies included massage to the levator ani as part of the manual therapy [1] [3], one study used intrarectal manipulation performed by a physi-otherapist and in another, a chiropractor used chiropractic manipulation per rectum under local an-aesthesia in a hospital clinic [4]. Only four studies examined manual interventions. Maigne et al. [1] assessed intrarectal manipulation in combination with levator ani massage compared to short-wave diathermy for chronic coccydynia using an individual global score. At six-month follow-up, 22% of the manual therapy group had a good outcome compared to 12% of controls. A shorter time from pain onset to start of treatment, traumatic versus insidious onset, and a stable coccyx were predic-tive of a good outcome with manual therapy. Khatri et al.[2] evaluated intrarectal manipulation combined with phonophoresis and TENS versus phonophoresis and TENS alone and found statistically significant improvement in VAS scores and pain-free sitting time for patients receiving in-trarectal manipulation.

Wu et al. [3] assessed manual treatment in combination with short-wave diathermy for coccydynia. There was a significant improvement in pain and a reduction in skin temperature at 12 weeks. All studies reported significant decreases in pain. Liram et al [4] treated coccydynia with chiropractic manipulation and mobilisation per rectum under local anaesthesia, reporting significant improvement in 40% of cases.

In the present study all coccyx manipulation was performed by the author, with extensive coccyx treatment experience, who for this study, treated 87 consecutive patients in his clinic with manipulation of coccygeal vertebrae in all planes internally or externally dependent on the diagnosis and used acupuncture for enthesopathy, deep tissue physical therapy massage for fibrotic pelvic muscles, ed-ucated patients in a unique and effective sitting posture and gave specific exercises for each pa-tient's optimal global improvement.

Causes of coccydynia include trauma from falls, prolonged sitting with slumped posture, and child-birth, particularly after Ventouse and forceps intervention. Coccydynia may be referred from pelvic inflammatory disease, ovarian cysts, prostatitis, neoplasms and coccygeal spurs. Coccygeal configu-ration is thought to be significant in coccydynia where Type I, II, III, and IV range from the most common Type I with the coccyx gently curved forward, Type II markedly curved forward, Type III sharply angulated, and Type IV as subluxated. This author finds that the sacrococcygeal joint sub-luxated into an extended or straightened position with loss of mobility and joint calcification are the major factors in most cases of chronic coccydynia. The over-reliance on findings of coccygeal insta-bility of the distal coccyx joints as the primary causative factor in coccydynia is questioned in this study.

A thorough patient history and clinical examination is essential. Standing digital coccyx x-rays are taken and reviewed just before manual palpation and evaluation of quality and range of movement of the coccyx joints and tissues, particularly the sacrococcygeal joint. Patient feedback is essential in locating the most painful parts of the coccyx. This approach precludes the need for seated x-rays in many cases.

Medical management of coccydynia includes a variety of antidepressants, neuromodulating drugs such as Gabapentin or Pregabalin, muscle relaxants, NSAIDs, morphine-based painkillers, cortisone injections, ganglion impar blocks, radiofrequency ablation with coccygectomy as the last resort.

In the 21st Century, coccydynia is increasingly prevalent, widely misunderstood and poorly diag-nosed and treated. A sedentary lifestyle is the norm in this new era of 'Homo sedens' with limited physical activity and resulting obesity. Pharmaceutical treatment for coccydynia, a biomechanical problem, is not effective. In this presentation to the Paris Coccyx Symposium 2016, I present a new neuromusculoskeletal manual approach to treating coccydyn with excellent results.

Background

A preceding chapter by Jon Miles, the founder of coccyx.org, outlines the history of coccydynia treatment throughout the world over many centuries. However, over the last 60 years pharmaceuti-cal therapy has taken over and is treating the central nervous system with increasingly powerful drugs to dull perception of pain but without effective rehabilitative treatment locally to often mini-mally subluxated coccyx joints. This paper will advocate specific manipulation and manual physical therapy informed by digital imaging.

Coccyx and pelvic pain is often the result of joints, muscles, nerves and connective tissue becoming chronically compressed, irritated and inflamed. Longterm, asymmetrical sitting positions compress nerve pathways as they exit the lower sacrum and coccyx, with nerve pain into the deep and super-ficial pelvis via a multitude of nerves including the rectal, perineal and pudendal nerves. This nerve damage instructs coccygeus, levator ani, piriformis and gluteal muscles to contract to protect the nerves with resulting self-perpetuating muscle spasm, hypersensitivity and fibrosis in the gluteal and medial ischial tuberosity tissues of the pelvis with potentially chronic referred pain to the genitals, perineum, abdomen and buttocks. Pelvic nerve or Pudendal Neuralgia is perpetuated by sitting, first one-side then another, until both sides may become involved. Symptoms include burning pain and paraesthesia in the pelvic nerves around the sacrum and coccyx with compensatory neuromusculo-skeletal repercussions throughout the body with asymmetrical and antalgic posture causing further back and neck pain over time.

Diagnosis of patients with coccyx pain

Patient History

It is essential, in consultation with the patient's medical practitioner, to exclude pathological, uro-logical, infective or gynecological causes of referred coccyx or pelvic pain.

(Coccydynia is potentially referred from prostatitis, ovarian cysts, endometriosis and pelvic inflammatory disease). Once eliminated as a source, persistent coccyx and pelvic pain is likely to be neu-romusculoskeletal and should be examined thoroughly, x-rayed and treated by specialized manipu-lation therapists and physical therapists.

Patient Examination

Diagnosis depends on a thorough history and physical examination of the complex interaction be-tween all anatomical structures possibly involved in dysfunction. Leg-length differences of a centi-metre or more, for example, are commonly seen in coccydynia patients with significant pelvic tilt and sacroiliac joint degeneration over time. We address this with graduated heel-lifts to regain symmetry of leg-length, pelvis and spine. Misalignment or fixation of facet, sacrococcygeal and intercoccygeal joints with muscular spasm are treated with specific joint manipulation, deep muscle trigger points, neural mobilisation and local medical acupuncture. Stretches and exercises help com-plete rehabilitation.

X-rays

Standing digital coccyx x-rays are taken which are very closely collimated (angled, narrowed-down and lead-shielded) to minimise ionising radiation to testes and ovaries.

X-rays are not taken if there is any chance of pregnancy. A computed digital x-ray system provides high-resolution x-ray imaging of the spine, pelvic and coccyx joints [Fig 1].

Images are manipulated and magnified to show the patient the position and condition of the joints to give a clear diagnosis and to help explain the treatment pathway and likely timescale for resolution. Standing x-rays show the condition and position of coccyx and pelvic joints but also allow precise measurement of a significant leg-length difference, pelvic obliquity or compensatory scoliosis, all of which initiate sitting asymmetry with resulting lateral, torsional, posterior or anterior subluxation of the coccyx as well as evidence of bony spicules, cysts or tumours.

Anterolisthesis or retrolisthesis subluxations of 2-3 millimetres or subluxation of 30-40 degrees of extension at the sacrococcygeal joint is routinely mis-reported as normal. Radiologists are looking for dislocations, fractures or tumours.

Seated x-rays, pioneered by Dr J-Y. Maigne, are very useful in showing complex coccygeal subluxations in comparison with standing x-rays of the same patient. Coccydynia is commonly misdiagnosed when the examiner diagnoses distal, flexed and hypermobile coccygeal joints as the cause of pain, requiring surgical excision. When the sacrococcygeal joint is stiff and straightened or extended backwards by up to 30°, this leaves the prominent, distal end of the extended first segment as the pressure point on sitting, with the flexible, distal coccygeal joints compressed into hyperflexion [Fig 1].

Surgery to remove the distal 'hypermobile or unstable' hyperflexed joints will fail in these cases because the pressure and pain on sitting remains as the hyperflexed joints are not usually the cause of pain. When the extended sacrococcygeal joint is manipulated to regain normal range of move-ment into flexion, the distal joints regain curvature and shared mobility without protective deep muscle spasm [Fig 1].

Figure 1. Patient X with an extended sacro-coccygeal joint and consequent hyperflexion of the intercoccygeal joint beneath it. The 90° flexed distal joints were not the cause of pain.

METHOD

A new neuromusculoskeletal manual treatment approach to coccyx and pelvic pain

Approximately 2000 coccygeal and pelvic pain patients have been treated at Sayer Clinics in Central London over the past 38 years. Many cases were due to coccyx subluxation following a fall or dur-ing childbirth or linked with long term, excessive sitting on poor seating and often associated with sacroiliac joint lesions. Symptoms of pain and dysfunction were resolved using manipulation, physi-cal therapy and acupuncture.

Intrarectal manual treatment is performed with patients prone using the gloved and lubricated mid-dle finger of the right hand to palpate and assess the mobility of all the coccygeal joints, coccygeus, levator ani and gluteal muscles and soft-tissues for changes in density, thickness or fibrosis with the left hand providing counter mobilisation. Sacrococcygeal and intercoccygeal joints and soft tissues are mobilised for three to five minutes at each treatment. This approach to treatment is aimed at re-storing function to joints which are locked, dislocated or subluxated whilst reducing mobility in hypermobile lumbosacral and pelvic joints using core stability exercises, ergonomic changes and active postural rehabilitation. Specifically, careful and skilled coccygeal manipulation is crucial for good results. Cases of relatively recent onset of a few weeks or months usually respond rapidly to treatment. Patients who have had coccydynia for much longer duration (up to thirty years) have usually had multiple cortisone injections (up to fifteen injections in one case).

Patients with x-ray and palpation examination findings of a rigid but as yet unfused, hyperflexed coc-cyx require per-rectal sustained digital traction or repeated manipulation anterior to posterior of the specific coccyx joint. Where the sacrococcygeal joint is extended backwards and calcifying, firm ex-ternal manipulation is used in an anterior direction to regain flexion. Most patients also need physical therapy deep-tissue massage usually to one-sided gluteal and coccygeus muscles which have become markedly thickened and painful, potentially compressing pelvic nerves. These pelvic muscles have often become deeply fibrotic and extremely pain-sensitive, after years or decades of sitting sideways (usually on the same side). For those patients in such exquisite pain that they can hardly be touched, light medical acupuncture is started with gentle soft tissue work, progressing to internal or external pelvic joint, muscle and ligament manipulation [Fig 2].

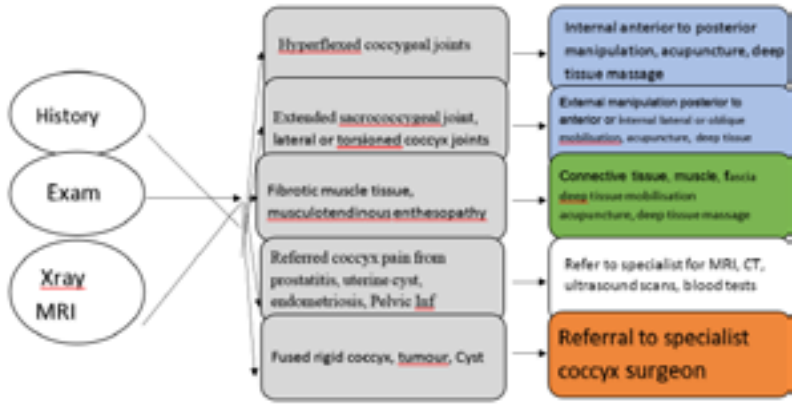

Figure 2. Chart of coccyx treatment options based on diagnosis

Aetiology of injury

Injuries are caused by: sitting backwards with knees higher than hips where ischial tuberosities sink lower with coccyx pressure posteriorly; structural coccygeal abnormalities; referred coccydynia in females from an ovarian cyst, pelvic inflammatory disease or carcinoma and prostatitis in males; direct trauma or falls with luxation or subluxation of sacroiliac, sacrococcygeal or intercoccygeal joints; hypertonicity, spasm or trigger points of levator ani muscles; low BMI or dramatic weight loss (which can expose a previous coccyx injury through loss of gluteal muscle and adipose tissue padding); coccyx enthesopathy which is increasingly prevalent, often due to years of slumped sit-ting in sofas, and is treated effectively by pinpoint and intense medical acupuncture to chronically inflamed musculotendinous entheses to initiate an acute healing response. Advice on exercises, weight-loss and renewed frequent physical activity is given.

Bowel movements, sexual intercourse, rowing and cycling are all potentially aggravating factors in coccydynia. Sacrospinous and sacrotuberous ligaments attach to the coccyx and are directly impli-cated in pudendal nerve entrapment (PNE) as are gluteus maximus, piriformis and obturator internus muscles. Manual deep tissue massage treatment involves elimination of trigger points and rehabilita-tion of these muscles and ligaments. Severe coccyx pain inhibits pelvic floor function and hyperton-ic or weak muscles are linked to pudendal neuralgia.

RESULTS

Research statistics for manipulation of coccydynia

87 consecutive patients who consulted me at Sayer Back Pain Clinics in London with coccyx pain were treated using internal or external manipulation of the coccyx (depending on type of joint luxa-tion or subluxation) and manual physical therapy [Tab 1][Fig 3].

Total (n=87)	
male	*25% (n=22)*
age	*37 (+/-11) years (Range: 13-69 years)*
BMI	*23.9 (+/- 4.8) (Range: 17.2-46.1)*
Pain	*4 (+/- 1) (scale: 1-5)*
Months since onset	*28 (+/-43) months (Range: 1-288)*
Months to improvement	*3 (+/- 3) months (Range: 0-16)*
Improvement	*72.8 (+/- 27.7) (Range: 0-100)*
Treatment times to max improvement	*6.5 (+/- 3.8) (Range: 0-20)*

Table 1. The Patient Cohort

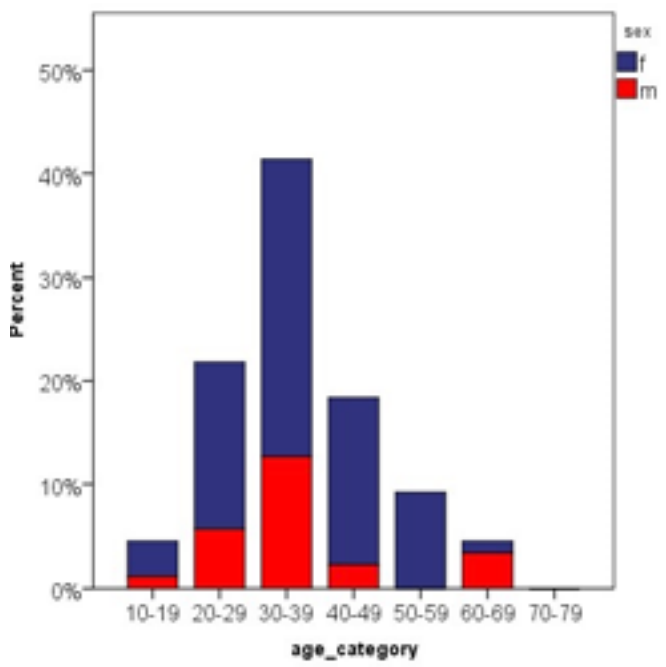

Figure 3. Age & gender distribution (overall cohort). Average age 37. 75% female patients.

Patients rated their Verbal Overall Percentage Pain Improvement (VOPPI) 0 to 100% at the start of each treatment visit in comparison with their original baseline pain (0%) before treatment started.

The average age of patients in the study was 37 years and 75% were female [Fig 3]. 69% of patients were in severe pain (pain scale scores 4 & 5) [Fig 4a]. There was a clear distinction between a large percentage of patients with recent severe trauma (37%) and a large percentage with no trau-ma (38%) while 62% of patients had a history of trauma to the coccyx, ranging from mild to severe [Fig 4b].

The range of 'time since onset of pain' was 1 month to 24 years, with a median of 1 year [Tab 1]. 46% of patients sought treatment within a year of pain onset whereas 18% of patients sought treat-ment after 3 or more years [Fig 5a].

The average overall improvement was 73% with 69% of patients reporting improvement of 70-100% relief of pain and 7% reported <30% relief. [Fig 5b].

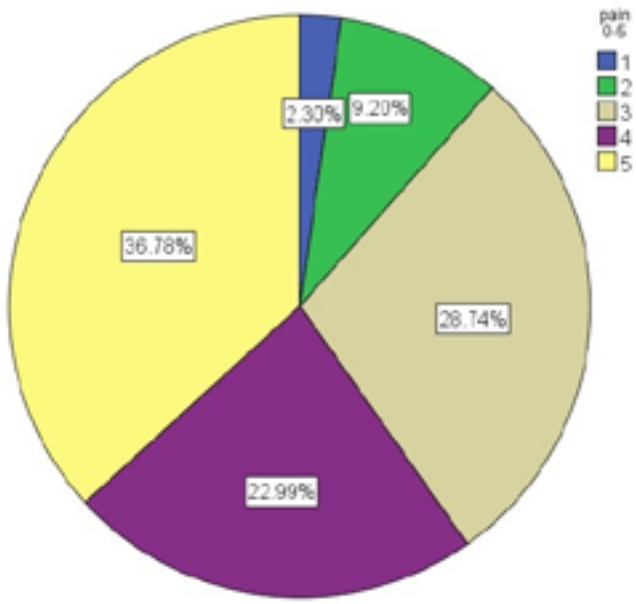

Figure 4a. 69% of patients were in severe pain (pain scale scores 4 & 5)

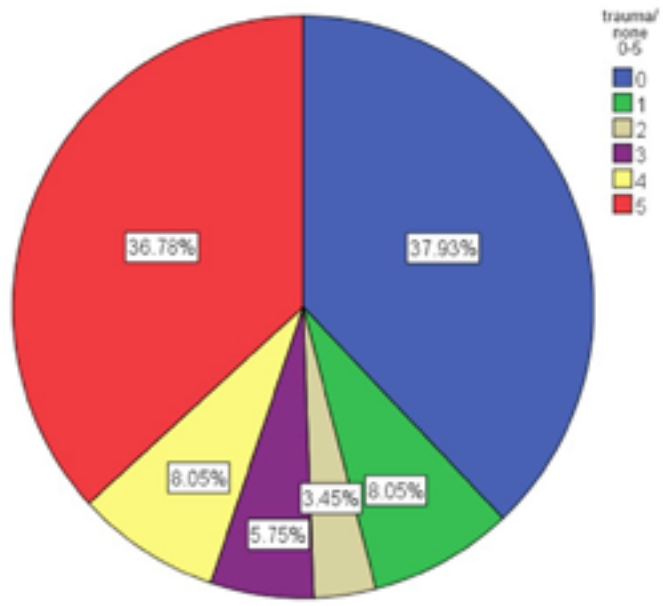

Figure 4b. Clear distinction between a large percentage of patients with severe trauma (37%) and a large percentage of patients with no trauma (38%)

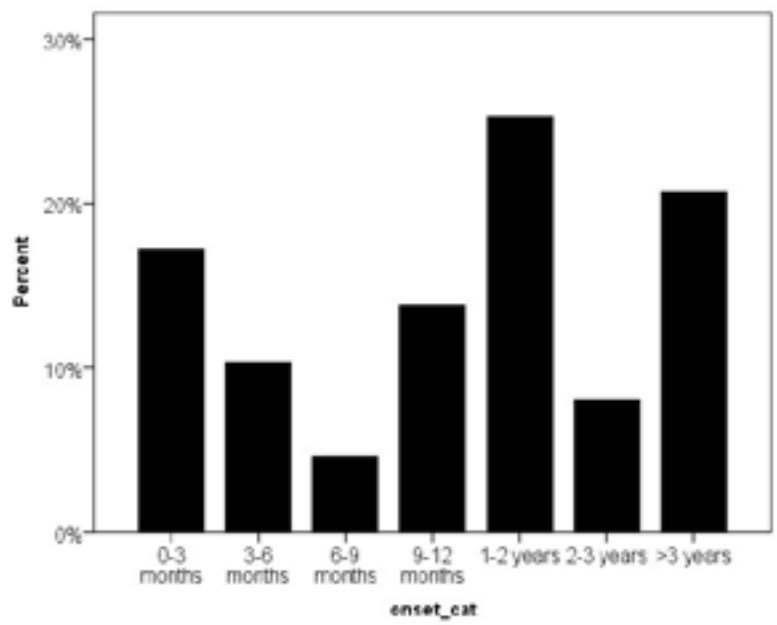

Figure 5a. Months since onset. 46% of patients sought treatment within a year of pain onset while 18% came >3 years after pain onset.

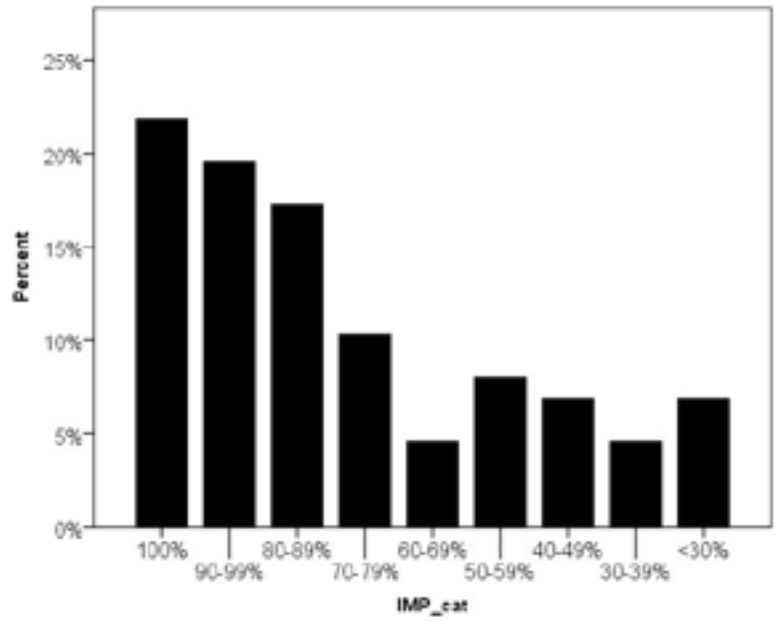

Figure 5b. Average overall improvement 73% while 69% improved more than 70%

A large proportion of patients (42%) needed 3-5 treatments to reach maximum improvement while the mean number of manipulation treatments to reach maximum improvement was 6.5 (range 1-20) [Fig 5c]. The mean duration of treatment was 3 months (range 0-16). [Fig 5d].

Comparing patients with low vs high improvement There was no significant difference in average age of high (100%) and low (<50%) improvers (Table 2,) whilst a significant difference in BMI (*p=0.043) of low improvers (average: 26.2) compared to high improvers was evident (average: 22.7) [Fig 6]. There was a trend to higher pain in low im-provers (average: 4.2) vs slightly lower pain in high improvers (average: 3.8) [Tab 2] [Fig 7].

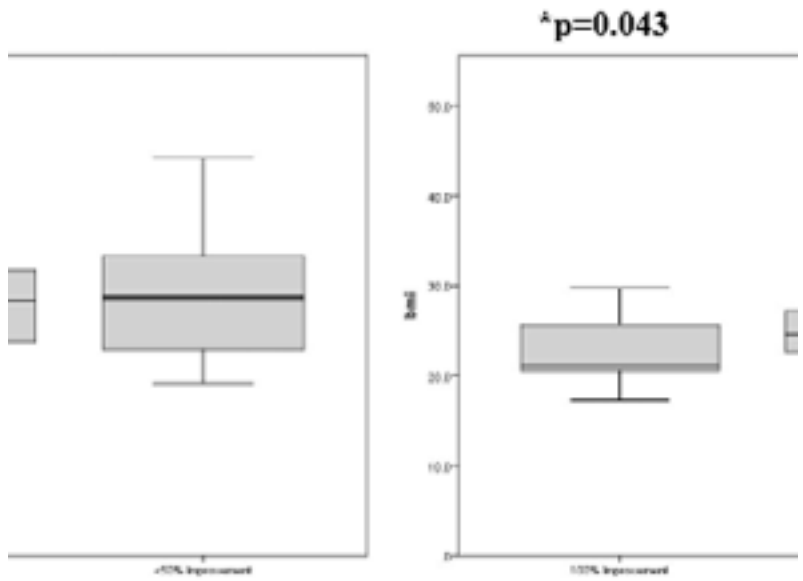

Figure 6. No significant difference in average age of high (100%) and low (<50%) improvers.
*Significant difference in BMI (*p=0.043) of low improvers (average: 26.2) compared to high im-provers (average: 22.7)*

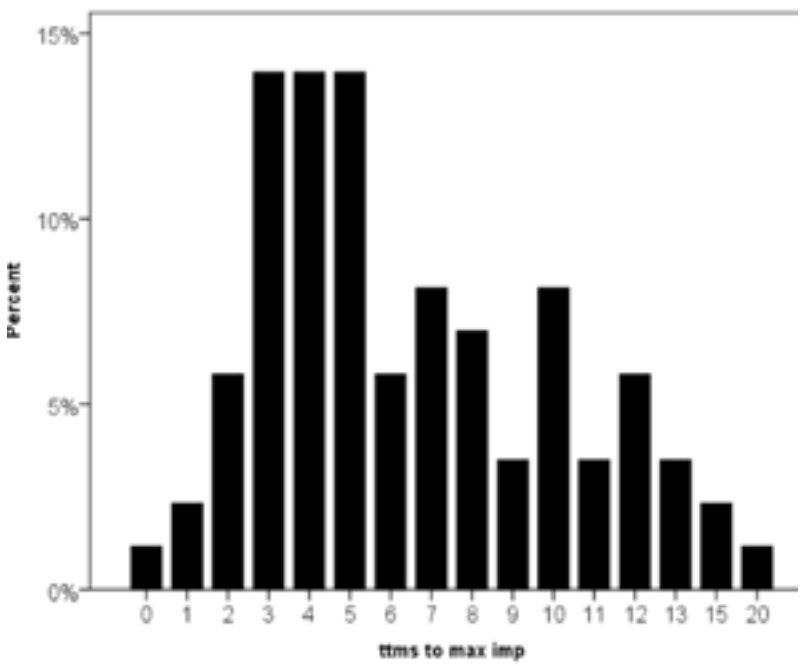

Figure 5c. A large proportion of patients (42%) needed 3-5 treatments to reach maximum improvement while the overall average was 7 treatments.

	100% imp (n=19)	<50% imp (n=16)
Gender	63% female (n=12)	75% female (n=12)
Age	33 (+/-7) years 17-45 years	35 (+/- 9) years Range: 23-53 years
BMI	22.7 (+/- 3.6) Range: 17.2-29.7	26.2 (+/- 6.3) Range: 19.9-46.1
Pain	3.79 (+/- 1.08)	4.19 (+/-0.98)
Months since onset	17 (+/- 21) months Range: 1-84 months	28 (+/- 29) months Range: 5-96 months
Sedentary	2 (+/- 2) Range: 0-5	4 (+/- 1) Range 1-5
Education	4.0 (+/- 1.2) Range (2-5)	3.3 (+/- 1.2) Range: 1-5
Patient motivation	4.3 (+/- 1.2) Range: 1-5	2.1 (+/- 1.6) Range: 0-5
TTMS to max imp	8 (+/- 5) Range: 2-20	5 (+/- 3) Range: 0-13
Trauma	3.2 (+/- 2.1) Range: 0-5	2.4 (+/- 2.4) Range: 0-5
Months to imp	3.8 (+/- 4.2) months Range: 0.5-16	2.1 (+/- 1.6) months Range: 0-7

Table 2. Comparing patients with low vs high improvement

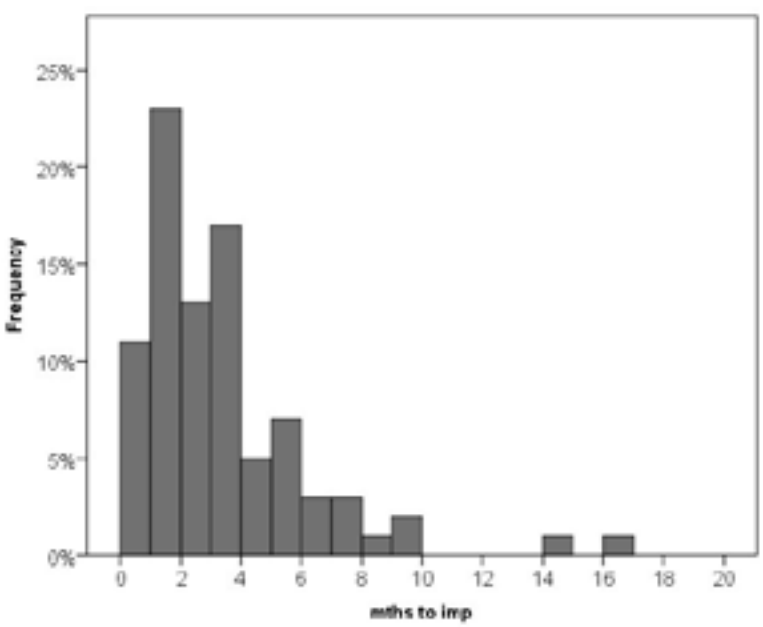

Figure 5d. The mean duration of treatment was 3 months (range 0-16).

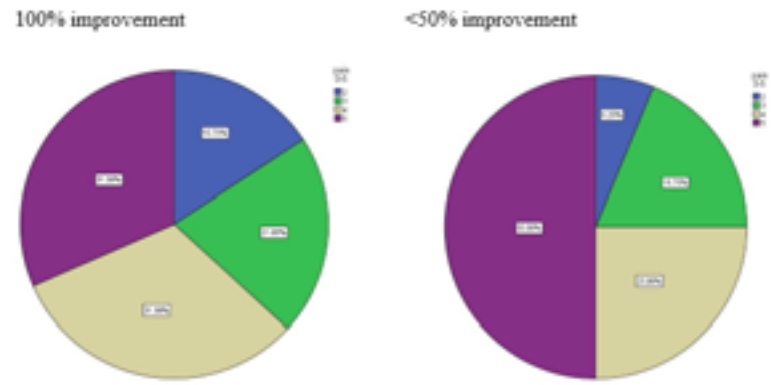

Figure 7. Trend to higher pain in low improvers (average: 4.2) vs slightly lower pain in high improv-ers (average: 3.8)

There was a strong, significant difference (p=0.001) in 'sedentary' of high improvers (average: 2) compared to low improvers (average: 4) [Fig 8]. A trend towards higher education in high im-provers (average: 4.0) compared to low improvers was noted (average 3.3) [Fig 9]. There was a clear, significant difference (p<0.001) in 'patient motivation' of high improvers (average: 4.3) com-pared to low improvers (average: 2.1) [Fig 10].

Comparing no trauma vs severe trauma patients
Patients with 'No trauma' had a more normal age distribution and 66.7% were female but 75% of patients with 'Severe trauma' were 20-30 years and 87.5% were female [Tab 3][Fig 11].

	No Trauma (n=33)	Severe Trauma (n=32)
Gender	*66.7% female*	*87.5% female*
Age	*36 (+/- 11 years)* *Range: 13-60*	*35 (+/- 10 Years)* *Range: 17-57*
BMI	*25 (+/- 4)* *Range: 19-33*	*23 (+/- 5)* *Range: 19-46*
Pain	*4 (+/- 1)* *Range: 1-5*	*4 (+/- 1)* *Range: 2-5*
Months since onset	*23 (+/- 38)* *Range: 1-216*	*24 (+/- 25)* *Range: 1-96*
Sedentary	*4.1 (+/- 1.4)* *Range: 0-5*	*2.7 (+/- 1.6)* *Range: 0-5*
Education	*3.6 (+/- 1.1)* *Raneg: 1-5*	*3.8 (+/- 1.2)* *Range: 1-5*
Patient motivation	*2.8 (+/- 1.4)* *Range: 1-5*	*3.6 (+/- 1.6)* *Range: 0-5*
Improvement	*66.5 (+/- 30.1)* *Range: 0-100*	*71.7% (+/- 28.2%)* *Raneg: 0-100*
TTMS to max improvement	*5.8 (+/- 3.2)* *Range: 1-5*	*6.8 (+/- 3.8)* *Range: 1-5*
Months to improvement	*2.8 (+/- 1.4)* *Range: 0-9 months*	*2.8 (+/- 2.6)* *Range: 0.5 -14*

Table 3. Comparing no trauma vs severe trauma patient

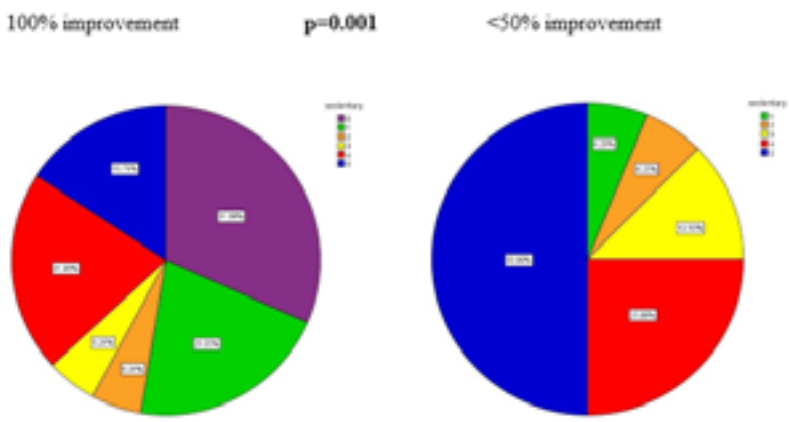

Figure 8. Strong significant difference (p=0.001) in sedentary of high improvers (average: 2) com-pared to low improvers (average: 4)

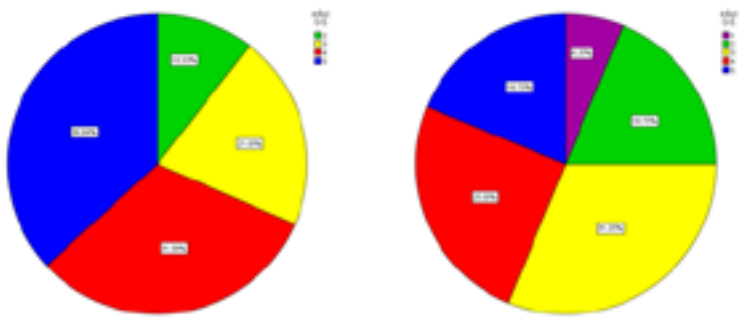

Figure 9.Trend towards higher education in high improvers (average: 4.0) compared to low improv-ers (average 3.3)

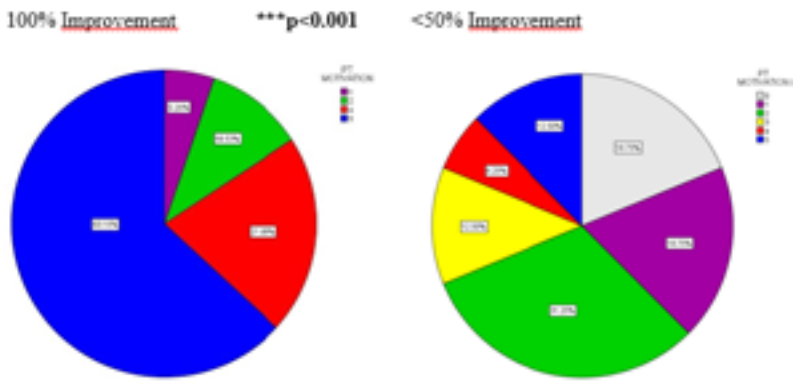

Figure 10. Clear significant difference (p<0.001) in patient motivation of high improvers (average: 4.3) compared to low improvers (average: 2.1)

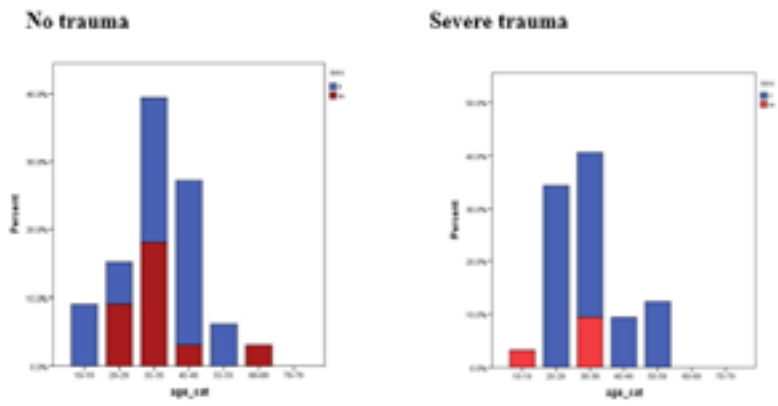

Figure 11. More normal age distribution - 75% with severe trauma are 20-30 years - 66.7% are female - 87.5% are female

There was no significant difference in BMI between no trauma (average: 25) and severe trauma patients (average: 23) [Fig 12]. There was no significant difference in pain score between patients with no trauma and severe trauma, although a high proportion of the severe trauma patients was also in se-vere pain (53%) compared to 39% of patients without trauma [Tab 3][Fig 13].

There was a strongly significant difference (p=0.008) in 'sedentary' between patients with severe trauma (average: 2.7) and no trauma (average: 4.1) [Fig 14]. There was a trend towards more frequent treatments required to achieve maximum improvement in severe trauma patients (average: 6.8) compared to patients without trauma (average: 5.8), no significant difference in time (months) required to achieve maximum improvement.

A smaller proportion of severe trauma patients (9.4%) showed <40% improvement compared to 18.2% of patients without trauma that showed <40% improvement. Similarly 69% of severe trauma patients improved 70-100% whereas 57% of the patients without trauma recovered 70-100% [Fig 15b].

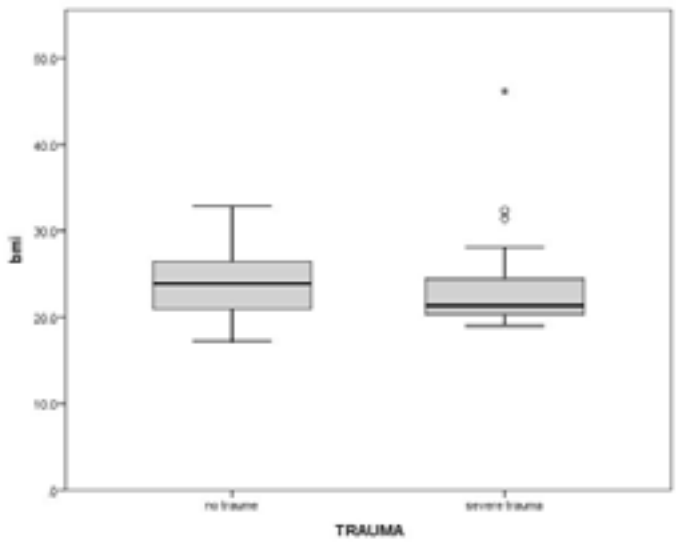

Figure 12. No significant difference in BMI between No trauma (average: 25) and Severe trauma patients (average: 23)

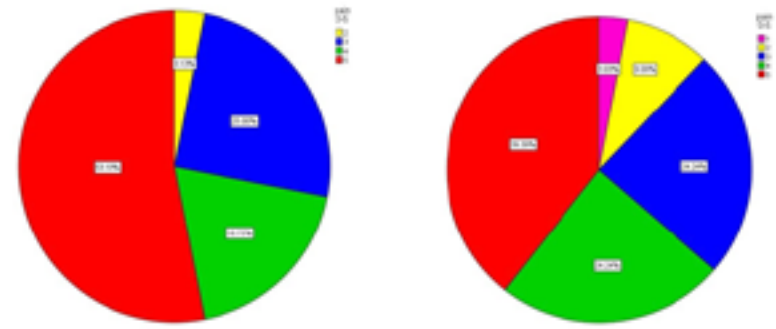

Figure 13. No significant difference in pain score between patients with no trauma and severe trauma, though a high proportion of the severe trauma patients was also in severe pain (53%) com-pared to 39% of patients without trauma

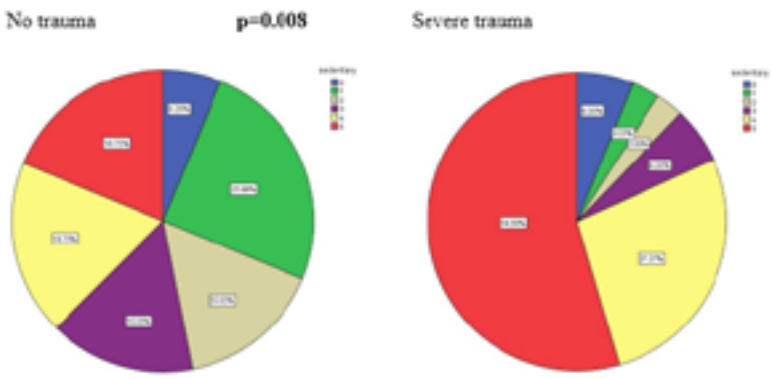

Figure 14. Strong significant difference (p=0.008) in 'sedentary' between patients with severe trauma (average: 2.7) and no trauma (average: 4.1)

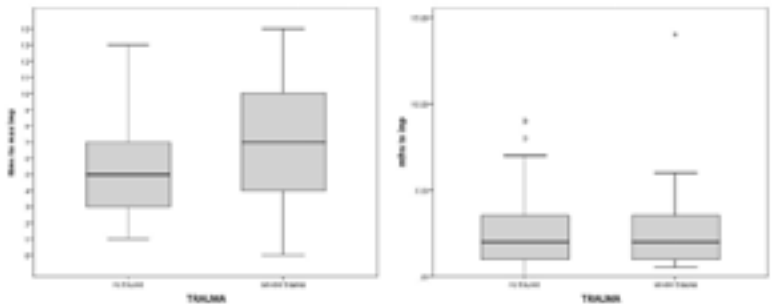

Figure 15a. Trend towards more frequent treatments required to achieve maximum improvement in severe trauma patients (average: 6.8) com-pared to patients without trauma (average:5.8), no signifi-cant diffe-rence in time (months) required to achieve maximum improvement

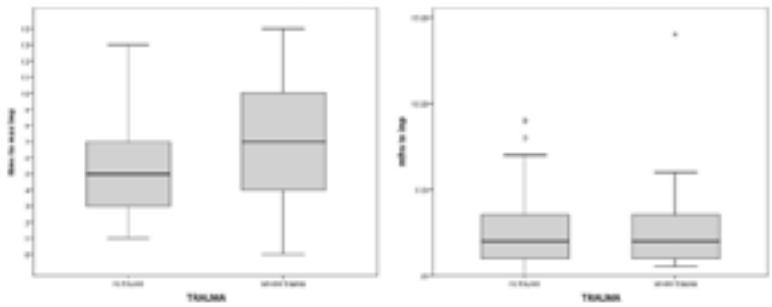

Figure 15b. A smaller proportion of severe trauma patients (9.4%) showed less than 40% improve-ment compared to 18.2% of patients wit-hout trauma that showed less than 40% improvement. Simi-larly 69% of severe trauma patients improved 70-100% whereas 57% of the patients without trauma recovered 70-100%.

DISCUSSION

Coccydynia is very much more prevalent in women than men as the female pelvis is shallower, wider and less stable than in males and the ischial tuberosities are approximately 40% further apart. This results in greater potential for a woman's more prominent and flexible coccygeal joints and surrounding soft-tissues to be injured from falls, prolonged sitting or local trauma during pregnancy and childbirth, especially with forceps or Ventouse intervention.

The most significant factors seen in these results were: BMI, Sedentary and Motivation.

A high proportion of sedentary, computer-based patients were seen with extended (angled backwards) and calcifying sacro-coccygeal joints without significant history of traumatic injury. My the-ory of non-traumatic coccydynia causation in the sedentary and overweight is of sacro-coccygeal joint damage gradually increasing with long-term leaning back and slumping in car, office, and home seating at the computer or TV. The coccyx is compressed and shears backwards against the leading edge of the seat cushion, grad-ually over years, into backwards angulation and becomes calcified or ossified. The higher the BMI (Body Mass Index) the greater this backward pressure on the sacrococcygeal joint. We advise those with coccydynia to start specialist manual therapy, without medication, injections or surgery and to gradually increase activity, lose and maintain a healthy weight.

Our resulting average improvement of 73% with 69% of patients reporting improvement of 70-100% in relief of pain compares very well to Dr J Y Maigne's 2006 study of intrarectal manipulation where 22% benefited long-term. Our treatment was complex and intense and the course of treatment was continued for as long as each patient needed in comparison to the probably gentler stretching techniques used in time-limited studies [1] [2] [3] [4].

Psychology

Many patients are depressed due to their perception that their chronic pain is incurable and are pre-scribed anti-depressants by GPs with limited experience of coccydynia. There is still a widespread assumption amongst often patronising health practitioners that coccydynia is psychogenic. In reality, chronic and severe coccyx and pelvic pain predisposes to depression and anxiety, just as in all chronic pain disorders. Deep and intense acupuncture is used to overwhelm and re-wire 'wind-up' or centralised pain hypersensitivity caused by the severity and chronicity of coccyx and pelvic pain. Localised coccyx, levator ani or pudendal nerve injury may lead to chronic, intractable pain in some patients with an explosion of 'plastic' neural changes in spinal and brain excitability and is funda-mental to the prolonged, heightened pain sensitivity of chronic pain. It is essential to explain this to patients so that they understand why their coccyx or pelvic pain is instantly exacerbated by strong emotion and stress.

Chronic musculoskeletal pain patients tend to be referred repeatedly to a succession of medical specialists with a series of MRI, CT and ultrasound scans which generally miss a subtle joint subluxa-tion or dysfunctional movement of a coccyx joint or a compressed pudendal nerve causing severe pelvic pain. The lack of a clear diagnosis is demoralising for the patient. Chronic coccyx and pelvic pain is probably underreported, possibly due to patient prudishness and inadequate medical training in examining this area properly.

Prescription Drugs

Since 2006 we have seen a worrying and dramatic increase in the prescription of powerful and dan-gerous morphine-based drugs for people experiencing moderate to severe chronic pain with all kinds of musculoskeletal problem but who quickly become drug dependent. These patients continue in chronic pain as they have not received effective musculoskeletal treatment and rehabilitation with exercise and fitness. The pharmaceutical industry continues to mislead medical practitioners, pain-clinics and the public about the safety and benefit of these drugs.

We have noted that repeated cortisone injections appear to accelerate calcification and fusion of coccygeal joints [5]. Cortisone only suppresses pain for a limited period but repeated injections over months or years serve only to delay skilled manual treatment to rehabilitate joint mobility, position and function. The longer this delay in physical treatment after onset of injury and the greater the number of cortisone injections, the more difficult effective treatment becomes.
Most patients had been prescribed a combination of drugs including anti-depressants, Pregabalin or Gabapentin which have a range of side-effects including weight gain, confusion, short-term memory loss, poor coordination, angioedema and an increased suicide risk.

CONCLUSION

In this study I propose a primary neuromusculoskeletal approach to coccyx and pelvic pain. The results from 87 patients with coccydynia show that treatment outcomes were extremely good with an average improvement of 73% with 69% of patients reporting 70-100% relief of pain with a mean of 6.5 manipulation treatments to reach maximum improvement. Most patients remained very well with a small number returning with a new episode of coccydynia but sought treatment sooner, re-turning to normal function following a short course of coccyx manipulation. Specific advice was routinely given to all patients to improve lifestyle, weight and sitting habits in order to remain pain-free.

Our patient-specific multipartite treatment approach to chronic coccygeal and pelvic pain is effec-tive for most patients following accurate digital x-ray imaging. Experienced musculoskeletal diag-nosis, accurate manipulation at the correct joint level, specific pelvic muscle exercises and medical acupuncture focuses the body's healing process alongside postural and ergonomic rehabilitation. Most patients respond well while a very small minority needing surgery will be referred quickly to experienced coccyx surgeons.

We facilitate patients' struggle for recovery and our success is due to our extremely "hands-on" treatment approach and pushing good lifestyle, activity and fitness to achieve the best prognosis.

The future

The future depends on our determination to inform, train health professionals as well as educating the public to take responsibility and care for their own spinal health.

Coccydynia is not a discrete disorder. Coccyx sufferers sit and lie sideways for months and years to avoid their severe and demoralising pain with resulting arthrosis, spinal curvature and back and neck pain and often also experience compressed pelvic and pudendal nerves with complex referred pelvic pain.

Efficient diagnosis with skilled and effective manipulation and physical therapy with intelligent advice must become the first treatment for patients with coccydynia and pelvic pain.

Coccydynia is misunderstood, poorly diagnosed and badly treated everywhere in the world but the most significant and crucial help for sufferers has been the information, support and advice made centrally available worldwide through coccyx.org by its founder Jon Miles.

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